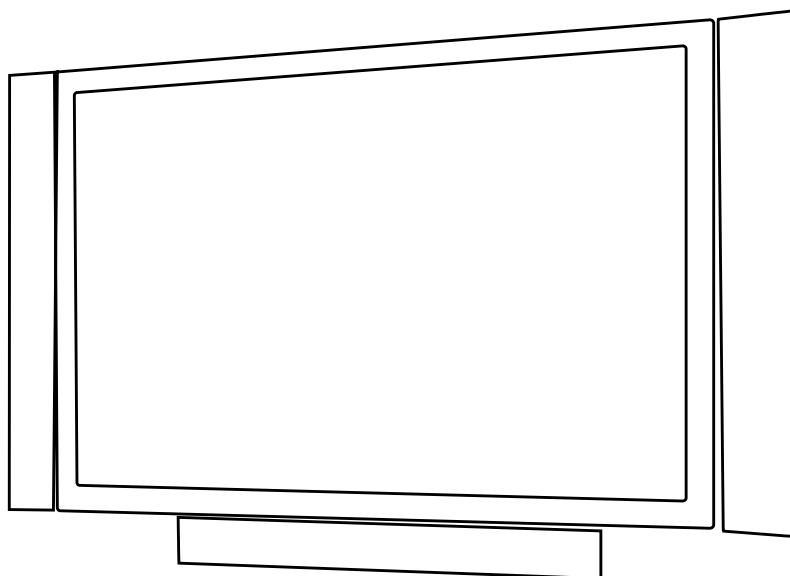


# Service Manual

**42" PLASMA PDP TV**

**CHASSIS : SP-200P**



#### Caution

: In this Manual, some parts can be changed for improving. their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List)in Service Information Center(<http://svc.dwe.co.kr>)

**DAEWOO ELECTRONICS Corp.**

<http://svc.dwe.co.kr>

Jun. 2004

# Contents

## I. Parts with the exception of MODULE

|   |    |
|---|----|
| 1. Safety Precautions .....   | 2  |
| 2. Product Specification .....  | 3  |
| 2-1. SPECIFICATION .....  | 3  |
| 2-2. Available Input Signal .....   | 5  |
| 2-3. Remote Control Setup Code .....  | 6  |
| 3. BLOCK DIAGRAM .....  | 14 |
| 4. Description Of A/V and power .....   | 15 |
| 4-1. Block Diagram of main IC and TP .....                                    | 15 |
| 4-2. Overview .....   | 16 |
| 4-3. POWER PCB .....  | 24 |
| 4-4. Interface with PDP module .....  | 26 |
| 5. SERVICE MODE .....   | 27 |
| 5-1. Checking initial menu data .....   | 27 |
| 5-2. Entering SERVICE MODE .....  | 28 |
| 5-3. Description Of SERVICE MODE Items .....                                  | 30 |
| 6. Adjusting Method .....   | 33 |
| 6-1. Adjusting WHITE BALANCE .....  | 33 |
| 6-2. Adjusting POWER PCB .....  | 34 |
| 7. SOFTWARE UPGRADE Method .....  | 36 |
| 8. Main PCB Trouble Diagnosis .....   | 39 |
| 8-1. MAIN & SUB PCB Trouble Diagnosis .....                                   | 39 |
| 8-2. POWER PCB Trouble Diagnosis .....  | 46 |
| 9. TROUBLE DIAGNOSIS .....  | 47 |
| 9-1. Facts You Must Know When Diagnosing And Repairing .....                  | 47 |
| 9-2. Typical Symptoms of PCB problem or bad Connection .....                  | 47 |
| 9-3. Trouble Diagnosis and Repairing Method for Representative Symptoms ..... | 48 |
| 10. ASSEMBLY LIST .....   | 53 |
| 11. STRUCTURE OF PDP SET .....  | 54 |
| 12. EXPLODED VIEW .....   | 59 |

## II. Parts of MODULE

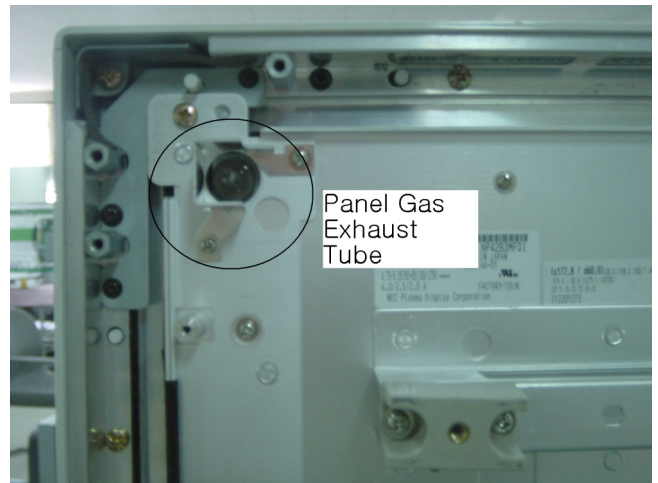
1. Confirmation Manual
2. Repair Manual

# I. Parts with the exception of MODULE

## 1. Safety Precautions

### 1. Safety Precautions

- (1) When moving or laying down a PDP Set, at least two people must work together. Avoid any impact towards the PDP Set.
- (2) Do not leave a broken PDP Set on for a long time. To prevent any further damages, after checking the condition of the broken Set, make sure to turn the power (AC) off.
- (3) When opening the BACK COVER, you must turn off power (AC) to prevent any electric shock. When PDP is operating, high voltage and high current inside the Set can cause electric shocks.
- (4) When loosening screws, check the position and type of the screw. Sort out the screws and store them separately for reassembling. Because screws holding PCBs are working as electric circuit GROUNDING, make sure to check if any screw is missing when assembling/reassembling. Do not leave any screws inside the set.
- (5) If you open the BACK COVER, you will see a Panel Gas Exhaust Tube (Picture. 1-1) inside the bracket. If this part is damaged, the entire PDP PANEL must be replaced. Therefore, when working with the set, be careful not to damage this part.



Picture 1-1. Panel Gas Exhaust Tube

- (6) A PDP Set contains different kinds of connector cables. When connecting or disconnecting cables, check the direction and position of the cable beforehand.
- (7) Connect/disconnect the connectors slowly with care especially FFC (film) cables and FPC cables. Do not connect or disconnect connectors instantaneously with force, and handle them carefully for reassembling.
- (8) Connectors are designed so that if the number of pins or the direction does not match, connectors will not fit. When having problem in plugging the connectors, check their kind, position, and direction.

## 2. Product Specification

### 2-1. SPECIFICATION

| ITEM                   | SPECIFICATION  | REMARK |
|------------------------|--|--------|
| 1. GENERAL             |  |        |
| 1-1. MODEL NO          | DPP-4272NHS  |        |
| 1-2. CHASSIS NO        | SP-200P  |        |
| 1-3. SCREEN SIZE       | 42" (16:9)   |        |
| 1-4. COUNTRY           | Europe   |        |
| 1-5. RESOLUTION        | 853(H) x 480(V)  |        |
| 1-6. REMOCON TYPE      | R-53DP4  |        |
| 1-7. SAFETY STANDARD   | CE(CLASS B), CB  |        |
| 1-8. TUNING METHOD     | FS   |        |
| 1-9. MEMORY CHANNEL    | 99CH   |        |
| 2. MECHANICAL          |  |        |
| 2-1. APPEARANCE        |  |        |
| 1) WITHOUT STAND       | W x H x D = 1044 x 631 x 89 mm   |        |
| 2) WITH STAND          | W x H x D = 1044 x 705.9 x 310 mm  |        |
| 2-2. WEIGHT            |  |        |
| 1) WITHOUT STAND       | 30.2 Kg  |        |
| 2) WITH STAND          | 34.7 Kg  |        |
| 3. ELECTRICAL          |  |        |
| 3-1. VIDEO INPUT       | COMPOSITE(NTSC, PAL, SECAM, PAL-M/N, NTSC4.43) & S-VHS(50/60Hz Y/C) 1 set  |        |
| 3-2. DTV/DVD INPUT     | 1080 i, 720P, 480P, 480i, 576P, 576i<br>(Y, Pb/Cb, Pr/Cr COMPONENT SIGNAL) 2sets   |        |
| 3-3. SCART INPUT       | SCART(COMPOSITE, R,G,B, SOUND) R/L 2sets   |        |
| 3-4. PC INPUT          | VGA ~ SXGA(Dot clock : 120MHz), 15 PIN D-SUB 1set  |        |
| 3-5. DVI INPUT         | DVI-D INPUT (DVI Jack) 1set  |        |
| 3-6. TV INPUT          |  |        |
| 1) COLOR STANDARD      | PAL B/G+I/I+D/K, L-SECAM, L'-SECAM   |        |
| 2) ANTENNA IN          | ONE INPUT 75 $\Omega$ Unbalanced (DIN Standard)  |        |
| 3) RECEPTION CHANNEL   |  |        |
|                        | VHF LOW : E2 ~ S6 Ch.<br>VHF HIGH : S7 ~ S36 Ch.<br>UHF : S37 ~ E69 Ch.<br>L'-SECOM : FB, FC1, FC  |        |
| 4) IF & SUBCARRIER     | PIF : 38.90MHz (PAL B/G+I/I+D/K, L-SECAM<br>33.9 MHz (L'-SECAM)<br>SIF : 33.40MHz (B/G), 32.90MHz (I/I),<br>32.4MHz (D/K, L-SECAM), 40.4MHz (L'-SECAM) |        |
| 3-7. SOUND INPUT       | VIDEO 1set, DTV/DVD 2set, PC 1set, DVI 1set  |        |
| 3-8. SPEAKER OUTPUT    | 10W(R) + 10W(L)  |        |
| 3-9. POWER REQUIREMENT | AC 100V~240V, 50/60Hz  |        |

## Product Specification

| ITEM  | SPECIFICATION  | REMARK |
|---|--|--------|
| 3-10. POWER CONSUMPTION<br>3-11. RS-232 CONTROL<br>3-12. AV OUTPUT<br>3-11. AV OUTPUT<br>3-13. FUNCTION<br>1) SCALING<br><br>2) ZOOM<br>3) OSD Language<br><br>4) OTHERS                  | 260W(Typical)<br>RS-232 Communication (FOR SERVICE UPGRADE)<br>SCART(CVBS, SOUND R/L) 2 sets<br>CVBS 1 set, SOUND R/L 1 set<br><br>DVI : H/V SIZE<br>PC: H/V SIZE, POSITION, PHASE, FREQUENCY<br>VIDEO/DVD(480i/576i) : 16:9, 4:3, AUTO, EnlargeLB,<br>EnlargeLBS, PANORAMA<br>DTV/DVD(480P and Better Resolution) : 16:9, 4:3<br>20 STEP ZOOM and PANING<br>18 Languages (English, Greek, Dutch, German, Russian, Rumanian,<br>Swedish, Danish, Finnish, Norwegian, Spanish, Italian, French,<br>Polish, Portuguese, Czech, Hungarian , Slovakian)<br>STILL, SLEEP MODE, SOUND MODE, PICTURE MODE<br>TIMER, TELETEXT (LEVEL 2.5)                                    |        |
| 4. OPTICAL<br>4-1. SCREEN SIZE<br>4-2. ASPECT RATIO<br>4-3. NUMBER OF PIXELS<br>4-4. DISPLAY COLOR<br>4-5. CELL PITCH<br>4-6. PEAK LUMINANCE<br>4-7. CONTRAST RATIO<br>4-8. VIEWING ANGLE | 42”(106 cm) DIAGONAL<br>16 : 9<br>853(H)X480(V)<br>1,677 Million Colors ( 8bits for each RGB)<br>1.08(H) x 1.08(V)mm (1 Pixel = a Set of RGB Cells )<br>400cd/m <sup>2</sup> (WITH FILTER GLASS)<br>1500:1 (Dark Room)<br>160 degree(VERTICAL/HORIZONTAL)  |        |
| 5. USERCONTROL & ACCESSORIES<br>5-1 CONTROL BUTTON(SET)<br><br>5-2. REMOTE CONTROL<br>(R-53DP4)<br><br>5-3. ACCESSORIES<br>5-4. OPTIONAL PARTS  | PUSH-PULL S/W : AC POWER BUTTON<br>SOFT S/W: MOVE/CH(UP, DOWN), VOLUME(LEFT, RIGHT),<br>MENU, INPUT SELECT<br><br>Power, Universal Selection (TV, VIDEO/DVD, CABLE, SAT),<br>10 KEYS(0~10), Recall, VCR /DVD KEY<br>(RR, Play, FR, Stop, Freeze, OPEN/CLOSE, PREV, NEXT ),<br>Menu, TV/VIDEO, MULTIMEDIA, Still, Previous Channel,<br>Sound Off, Channel(UP/DOWN), Volume(UP/DOWN),<br>Screen Mode/MIX, Screen Size, Zoom-, Zoom+, Sleep Timer,<br>Multilingual/CYAN, Sound Mode/INDEX., RED, GREEN, YELLOW,<br>TEXT, REVEAL, UPDATE, EXPAND, SUBPAGE, HOLD<br>REMOCON, BATTERY, USERS MANUAL, A/V CABLE, RF CABLE<br>STAND, WALL HANGER, SPEAKER UNITS(Left, Right) |        |

## Product Specification

### 2-2. Available Input Signal

#### (1) PC & DVI

| Resolution | H Freq. (KHz) | V Freq. (Hz) | Remark  | DVI | PC |
|------------|---------------|--------------|---------|-----|----|
| 640x400    | 37.861        | 85.080       | VESA    |     | 0  |
| 640x480    | 31.469        | 59.940       | DOS     | 0   | 0  |
|            | 37.861        | 72.809       | VESA    | 0   | 0  |
|            | 37.500        | 75.000       | VESA    | 0   | 0  |
|            | 43.269        | 85.061       | VESA    | 0   | 0  |
| 720x400    | 31.469        | 70.087       | IBM     | 0   | 0  |
|            | 37.927        | 85.039       | VESA    |     | 0  |
| 800x600    | 35.156        | 56.250       | VESA    | 0   | 0  |
|            | 37.879        | 60.317       | VESA    | 0   | 0  |
|            | 48.077        | 72.188       | VESA    | 0   | 0  |
|            | 46.875        | 75.000       | VESA    | 0   | 0  |
|            | 53.674        | 85.061       | VESA    | 0   | 0  |
| 1024x768   | 48.363        | 60.004       | VESA    | 0   | 0  |
|            | 56.476        | 70.069       | HP&VESA | 0   | 0  |
|            | 60.023        | 75.029       | VESA    | 0   | 0  |
|            | 68.677        | 84.997       | VESA    |     | 0  |
| 1152x864   | 67.500        | 75.000       | VESA    | 0   | 0  |
| 1280x960   | 60.000        | 60.000       | VESA    | 0   | 0  |

#### (2) DTV

-1080i/ 60 Hz

-720P / 60 Hz

-480P / 60 Hz

#### (3) VIDEO

-PAL, PAL-M, PAL-N

-NTSC , NTSC4.43

- SECAM

## Product Specification

### 2-3. Remote Control Setup Code

| <b>[BRAND LIST : R-53DP4]</b>  |   |
|--------------------------------|---|
| <b>1. VCR/DVD</b>              | <b>LAST UPDATE : 2004.05.19</b>             |
| <b>1) VCR (STANDARD : 002)</b> |   |
| Maker (Brand) Name             | Code Number (3 digit) List                  |
| AIWA                           | 038 043 054 072 111 115 120                 |
| AKAI                           | 027 034 043 069 089 091 102 123             |
| AKURA                          | 028 111                                     |
| ALBA                           | 028 060 072 113 118 119 120                 |
| AMSTRAD                        | 038   |
| ANITSCH                        | 029   |
| ARC EN CIEL                    | 043 044 089                                 |
| ARISTONA                       | 048 090 108                                 |
| ASA                            | 053 054                                     |
| BAIRD                          | 043 102                                     |
| BASIC LINE                     | 028 060 072                                 |
| BLAUPUNKT                      | 026 085 090 097 106 108                     |
| BRANDT ELECTRONIQUE            | 043 044 089                                 |
| BUSH                           | 027 028 060 072 118 119 120                 |
| CAPEHART                       | 060   |
| CGE                            | 038 043 089                                 |
| CONTINENTAL EDISON             | 043 044 089                                 |
| CRAIG                          | 001 041                                     |
| CURTISMATHES                   | 059 061                                     |
| DAEWOO                         | 002 008 060 062 063 067 068                 |
| DAYTRON                        | 060   |
| DECCA                          | 038 043                                     |
| DEGRAAF                        | 014 017 038 048 053                         |
| DUAL                           | 043 089                                     |
| DUMONT                         | 014 038 053                                 |
| DYNATECH                       | 038   |
| ELBE                           | 035   |
| EMERSON                        | 010 031 038 059 061 072                     |
| FERGUSON                       | 004 043 082 084 089 093 099 103 107 121 126 |
| FIDELITY                       | 038   |
| FINLADIA                       | 014 053                                     |
| FINLUX                         | 014 017 038 053                             |
| FISHER                         | 001 014 018 033                             |
| FUNAI                          | 038   |

## Product Specification

| Maker (Brand) Name | Code Number (3 digit) List                  |
|--------------------|---|
| GBC                | 092   |
| GE                 | 059 061                                     |
| GELOSO             | 092   |
| GOLDSTAR           | 054   |
| GOODMANS           | 028 038 041 049 053 054 060 072             |
| GRAETZ             | 043 044 083 089 105                         |
| GRANADA            | 014 018 053 108 124                         |
| GRUNDIG            | 053 085 090 096 097 098 108                 |
| HIFIVOX            | 043 044 089                                 |
| HINARI             | 010 028 071 072 077 092 111 116 120         |
| HITACHI            | 017 024 038 043 073 086                     |
| IMPERIAL           | 038 095                                     |
| INGELEN            | 043 044 089 105                             |
| INGERSOL           | 077   |
| INNO HIT           | 092   |
| ITT                | 018 043 083 102                             |
| ITT-NOKIA          | 043 044 089 105                             |
| JENSEN             | 043   |
| JVC                | 003 006 009 043 044 046 084 089 111 114 124 |
| KENWOOD            | 018 043 046 111                             |
| KRIESLER           | 048 090 108                                 |
| LLOYD              | 038   |
| LOEWE              | 064   |
| LOEWE OPTA         | 053 081 090 108                             |
| LOGIK              | 028 041 072 077 102                         |
| LUXOR              | 102 105                                     |
| LXI                | 054   |
| MAGNASONIC         | 105   |
| MAGNAVOX           | 059 061                                     |
| MARANTZ            | 049 053 072 090 108 110                     |
| MATSUI             | 010 031 041 054 072 077 113 117 120         |
| MEMOREX            | 001 014 018 038 048 054                     |
| METZ               | 090 097 104 108                             |
| MGA                | 052   |
| MINERVA            | 085 097 108                                 |
| MINOLTA            | 017 024                                     |



## Product Specification

| Maker (Brand) Name | Code Number (3 digit) List   |
|--------------------|--|
| MITSUBISHI         | 046 052 075 122  |
| MTC                | 038 041  |
| MULTITECH          | 020 028 038  |
| MURPHY             | 038  |
| NAONIS             | 043 044 089  |
| NATIONAL           | 106  |
| NEC                | 035 043 046 089  |
| NECKERMANN         | 010 043 089 108  |
| NOBLIKO            | 108  |
| NOGAMATIC          | 043 044 089  |
| NOKIA              | 014 018 043 044 083 089 102 105                                    |
| NORDMENDE          | 003 006 009 013 015 019 021 022 036 043 044 089 094 096 100<br>101 |
| OPTONICA           | 048 049  |
| ORION              | 010 030 031 032 058 072 077  |
| OSAKI              | 038 054  |
| PANASONIC          | 016 070 087 088 106  |
| PATHE' MARCONI     | 043 044 089  |
| PENTAX             | 017 024  |
| PERDIO             | 038  |
| PHILIPS            | 005 040 042 045 048 049 053 064 078 081 090 108                    |
| PHONOLA            | 048 053 081 090 108  |
| PIONEER            | 046 053 112  |
| PORTLAND           | 060  |
| PROLINE            | 038  |
| PYE                | 048 053 081 090 108  |
| QUARTZ             | 018  |
| QUELLE             | 010 047 097 108  |
| RADIOLA            | 048 090 108  |
| RCA                | 059 061  |
| REALISTIC          | 001 014 018 038 041 048 049  |
| REX                | 003 043 044 089  |
| ROADSTAR           | 028 041 054  |
| SABA               | 003 006 011 012 013 015 021 022 043 044 089 101                    |
| SAISHO             | 010 031 072 077 086 113  |
| SALORA             | 018 052 124  |

## Product Specification

| Maker (Brand) Name | Code Number (3 digit) List              |
|--------------------|---|
| SAMSUNG            | 041 055 056 059 061 065 066 091 095     |
| SANSUI             | 043 046                                 |
| SANYO              | 001 014 018 039 072 105 125             |
| SBR                | 053 078 081                             |
| SCHAUB LORENZ      | 043 044 083 089 105                     |
| SCHNEIDER          | 028 038 048 090 095 108                 |
| SEG                | 095                                     |
| SEI-SINUDYNE       | 077                                     |
| SELECO             | 043 044 089                             |
| SENTRA             | 060                                     |
| SHARP              | 048 049 057 074                         |
| SHINTOM            | 028                                     |
| SIEMENS            | 085 090 097 105 108                     |
| SIERA              | 048 090 108                             |
| SINUDYNE           | 077                                     |
| SONY               | 047 050 051 076 080                     |
| STERN              | 043 044 089                             |
| STS                | 017                                     |
| SUNKAI             | 072                                     |
| SYLVANIA           | 038 052                                 |
| SYMPHONIC          | 038 052                                 |
| TASHIKO            | 038                                     |
| TATUNG             | 038 043                                 |
| TEAC               | 038 043                                 |
| TEKNIKA            | 038                                     |
| TELEAVIA           | 043 044 089                             |
| TELEFUNKEN         | 006 015 023 025 037 043 044 089         |
| TENOSAL            | 028                                     |
| THOMSON            | 015 019 043 044 089                     |
| THORN              | 043 084 089 109                         |
| THORN-FERGUSON     | 021 022 043 082 084 089 093 099 103 107 |
| TOSHIBA            | 008 043 044 052 079 089                 |
| TOTEVISION         | 041                                     |
| UHER               | 043 095                                 |
| UNITECH            | 041                                     |
| VICTOR             | 043 046                                 |

## Product Specification

| Maker (Brand) Name | Code Number (3 digit) List |
|--------------------|----------------------------|
| WARDS              | 059 061                    |
| YAMAHA             | 043                        |
| ZANUSSI            | 043 044 089                |
| ZENDER             | 089                        |
| ZOPPAS             | 043 044                    |
| <b>2) DVD</b>      |                            |
| Maker (Brand) Name | Code Number (3 digit) List |
| ANAM               | 158 159                    |
| AKAI               | 154                        |
| DAEWOO             | 152 160                    |
| DENON              | 157 161                    |
| HYUNPAZ            | 162                        |
| KENWOOD            | 156                        |
| LG                 | 150 168 169                |
| MAGNAVOX           | 155                        |
| ONKYO              | 165 166 167                |
| PANASONIC          | 157 170                    |
| PHILIPS            | 155                        |
| PIONCER            | 153                        |
| SAMSUNG            | 151 163 164                |
| THOMSON            | 171                        |
| TOSHIBA            | 155                        |
| YAMAHA             | 157                        |
| WILL CAN           | 172                        |

## Product Specification

### 2. SAT (STANDARD : 002)

| Maker (Brand) Name | Code Number (3 digit) List                  |
|--------------------|---|
| AKAI               | 032   |
| ALBA               | 016 023 055 069 111 115 117 120             |
| AMSTRAD            | 070 096                                     |
| ANKARO             | 050   |
| ARCON              | 078   |
| ARISTONA           | 052   |
| ARTHUR MARTIN      | 094   |
| ASTRA              | 067 097                                     |
| BARCOM             | 050   |
| BLAUPUNKT          | 037   |
| BT SATELLITE       | 119   |
| BUSH               | 023 047 052 055 069 076 106                 |
| CAMBRIDGE          | 059   |
| CAMBRIDGE ARD200   | 103   |
| CHAPARRAL          | 011   |
| CONNEXIONS         | 038 041 095                                 |
| DAEWOO             | 002   |
| DISKXPRESS         | 038 050                                     |
| DRAKE              | 001 039 043 060 077                         |
| ECHOSTAR           | 015 020 046 049 064 065 071 085             |
| ELTASAT            | 058   |
| FERGUSON           | 044 047 051 052 062 063 066 076 106 108 111 |
| FINLUX             | 008 009                                     |
| FRACARRO           | 054 086                                     |
| FTE                | 079   |
| FUBA               | 013   |
| GIUCAR RECORD      | 006 088                                     |
| GOLDSTAR           | 078 107                                     |
| GOODMANS           | 111   |
| GRAETZ             | 087 098                                     |
| GRANADA            | 098   |
| GRUNDIG            | 037 052 066 089 122                         |
| HIGH PERFORMANCE   | 084   |
| HIRSCHMANN         | 008 037                                     |
| HITACHI            | 106 111                                     |
| INGELEN            | 087 098                                     |
| ITT                | 068   |
| ITT-NOKIA          | 020 066 087 098                             |

## Product Specification

| Maker (Brand) Name | Code Number (3 digit) List                      |
|--------------------|---|
| JEEMON             | 058   |
| JERROLD            | 044   |
| JOHANSSON          | 093   |
| KATHREIN           | 032 079 080 089 090 095 099 110 112 114 118 120 |
| KRIESLER           | 052   |
| LENCO              | 078   |
| LUXOR              | 042 087 094 098                                 |
| MACAB              | 083   |
| MAGAI              | 079   |
| MANHATTAN          | 058 106 111 116                                 |
| MARANTZ            | 032   |
| MASPRO             | 048 052 092 095 106 108 113 121                 |
| MATSUI             | 019 109 119                                     |
| METZ               | 089   |
| MINERVA            | 089   |
| MULTISTAR          | 079   |
| NEC                | 029 035 072                                     |
| NEIRU              | 078   |
| NOKIA              | 087 098 105                                     |
| NORSAT             | 045   |
| PACE               | 010 052 063 066                                 |
| PACE MSS SERIES    | 066   |
| PALCOM             | 091   |
| PALSAT             | 024   |
| PANASONIC          | 030   |
| PHILIPS            | 018 031 032                                     |
| PHONOLA            | 052   |
| PROSAT             | 055   |
| PYE                | 052   |
| QUELLE             | 089   |
| RADIOLA            | 052   |
| RADIX              | 046   |
| RC-1000            | 103 104   |
| REDIFFUSION        | 035 045   |
| SAKURA             | 053 056   |
| SALORA             | 033 067 087 094 098                             |
| SAMSUNG            | 079   |
| SATECO             | 016   |
| SATPORTNER         | 078   |
| SCHAUB LORENZ      | 087 098   |

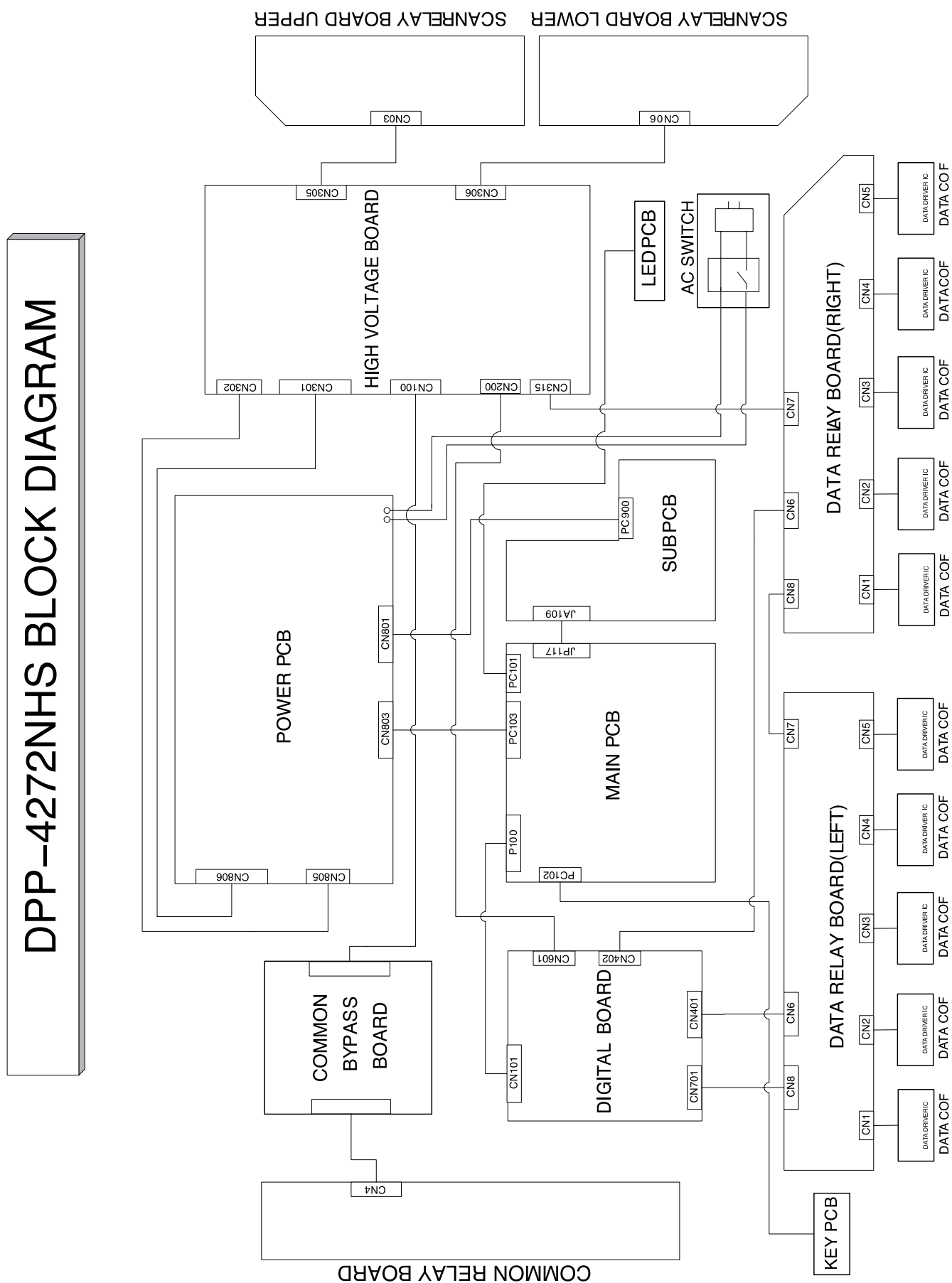
## Product Specification

| Maker (Brand) Name | Code Number (3 digit) List      |
|--------------------|---------------------------------|
| SCHNEIDER          | 052                             |
| SENTRA             | 036                             |
| SIEMENS            | 037 089                         |
| SIERA              | 052                             |
| SILVA              | 078                             |
| SINTRACK           | 012                             |
| STARSAT            | 079                             |
| STELLA             | 040                             |
| STRONG             | 024 061                         |
| STV                | 013                             |
| TANDBERG           | 007                             |
| TANDY              | 084                             |
| TATUNG             | 034 073                         |
| TECHNISAT          | 004 005 027 083 101 102         |
| TELECOM            | 040 123 124                     |
| TELEFUNKEN         | 082                             |
| TELEMAX            | 017                             |
| THORN-FERGUSON     | 022 044 047 051 052 062 063 066 |
| TRIACL             | 083                             |
| TRIAD              | 084 100                         |
| UNIDEN             | 057 074 075 079                 |
| VIDIO WAY          | 014                             |
| VORTEC             | 081 082                         |
| WINERSAT           | 093                             |
| WISI               | 003 021 025 026 046             |
| WOLSEY             | 084                             |
| ZEHNDER            | 079                             |
| ZENITH             | 043                             |

### 3. CATV (STANDARD : 002)

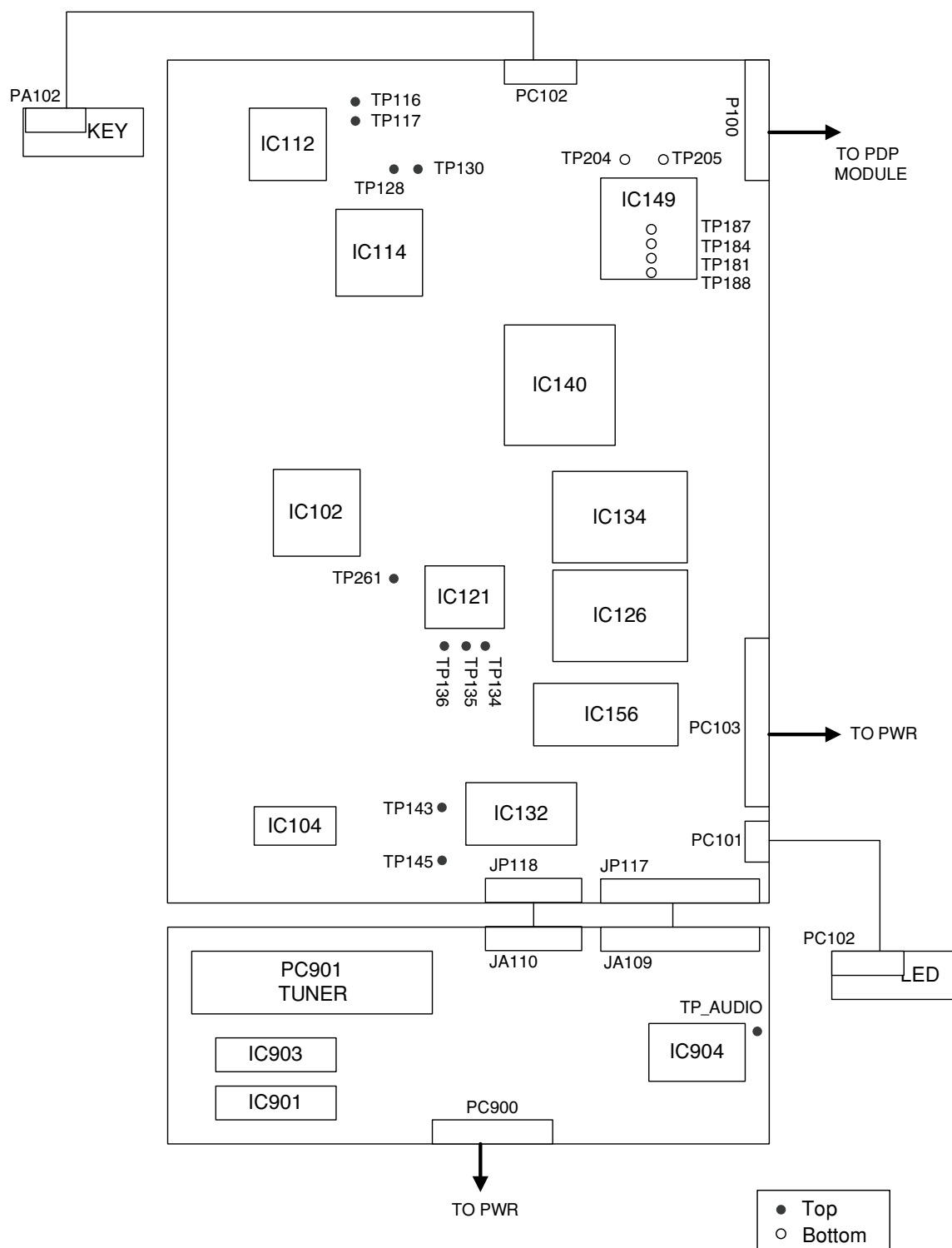
| Maker (Brand) Name | Code Number (3 digit) List |
|--------------------|----------------------------|
| CABLETIME          | 201 206 207                |
| FILMNET CABLECRYPT | 202                        |
| JERROLD            | 203 204                    |
| MATSUSHITA         | 202                        |
| SCIENTIFIC ATLANTA | 205                        |
| SKYLIFE            | 002                        |
| STARCOM            | 203                        |
| UNITED CABLE       | 203                        |
| VISIOPASS          | 209                        |
| WESTMINSTER CABLE  | 208                        |

### 3. BLOCK DIAGRAM



## 4. Description of A/V(MAIN and SUB PCB) and POWER

### 4-1. Block Diagram of main IC and TP





## Description of A/V(MAIN and SUB PCB) and POWER

### 4-2. Overview

A/V block (Main and Sub PCB) is Multi Media circuit board that can process various input signals such as video, component, PC, DVI, and analog TV signal. It is mainly composed of switching, sync processing, decoding, analog TV, digital image processing, and system control part

#### 4-2-1. Composite video, Y/C(S-Video) and SCART (CVBS, RGB) composite video

Y/C(S-Video) and SCART(CVBS) have similar signal paths, IC102 receives these signals and swithes out a selected signal. Then the signal goes into IC132 for video processing, SCART(RGB) signal goes directly into IC132. The output of IC132 goes through IC134 and IC140 for deinterlacing and digital image processing respectively.

##### - Main IC

A. IC102: Switching IC (Input: analog inputs Output: an analog output)

B. IC126: Teletext IC

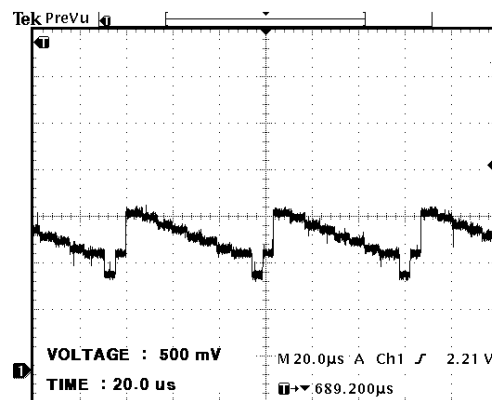
C. IC132: Video processor (Input: Y/C, CVBS Output: 16bit digital, HV)

D. IC134: Deinterlacer (Input: 16bit digital, HV Output: 24bit digital RGB, HV)

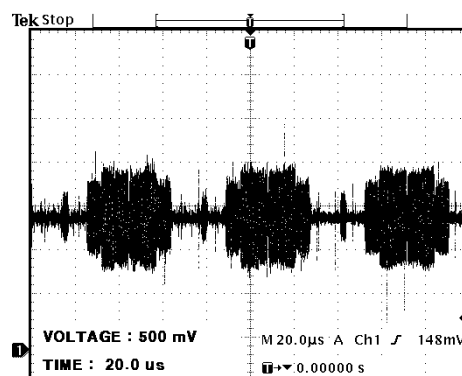
E. IC140: Image Processor (Input: 24bit digital RGB, HV Output: 24bit digital RGB, HV)

##### - Main TP (Input: Color Bar Pattern)

#### ◆TP145: Brightness signal (input to IC132)

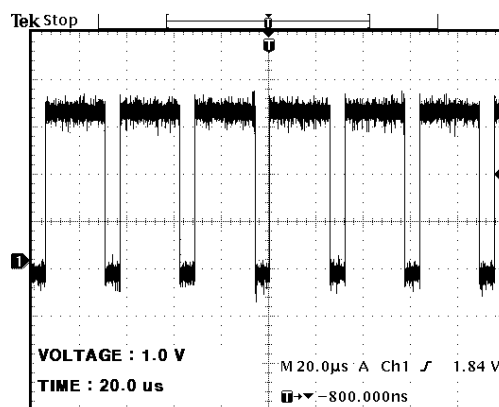


#### ◆TP143: Color signal (input to IC132)

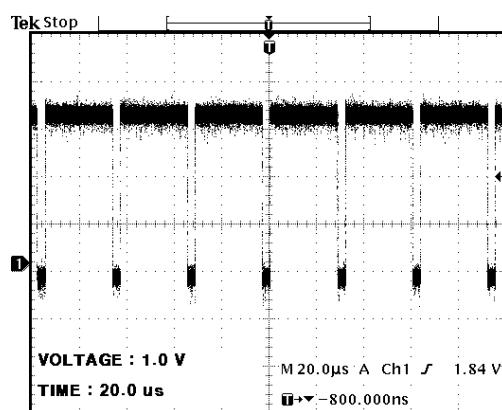


## Description of A/V(MAIN and SUB PCB) and POWER

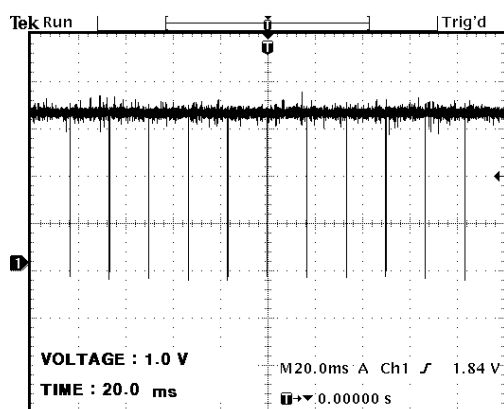
### ◆TP181: Data enable (output of IC140)



### ◆TP184: Horizontal sync (output of IC140)

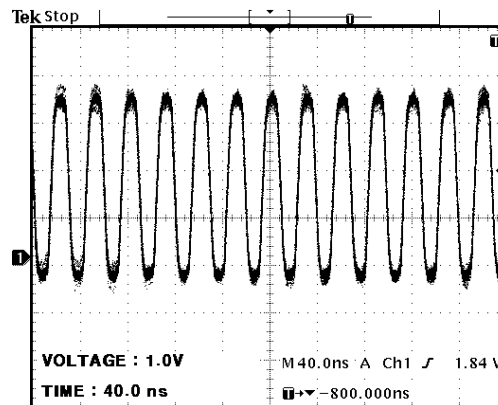


### ◆TP187: Vertical sync (output of IC140)



## Description of A/V(MAIN and SUB PCB) and POWER

### ◆TP188: Clock for display (output of IC140)



#### 4-2-2. TV signal

Tuner(PC901) receives antenna signal and outputs CVBS and sound signal. IC102 switches out the CVBS and the rest of the signal flow is same as composite video signal flow mentioned earlier.

##### - Main IC

- A. PC901: Tuner (Input: antenna signal Output: CVBS)
- B. IC102: Switching IC (Input: CVBS Output: CVBS)
- C. IC126: Teletext IC
- D. IC132: Video processor (Input: Y/C Output: 16bit digital, HV)
- E. IC134: Deinterlacer (Input: 16bit digital, HV Output: 24bit digital RGB, HV)
- F. IC140: Image Processor (Input: 24bit digital RGB, HV Output: 24bit digital RGB, HV)

##### - Main TP (Input: Color Bar Pattern)

- ◆TP143, 145
- ◆TP181, 184, 187, 188

#### 4-2-3. DTV/DVD signal

Both DTV(Y, Pb, Pr) and DVD(Y, Cb, Cr) share same jack and signal path. IC102 switches out signal and also detects type of signal so that IC121 can convert the analog signal to digital. Then the signal goes through IC134(deinterlacer) and IC140 for digital image processing.

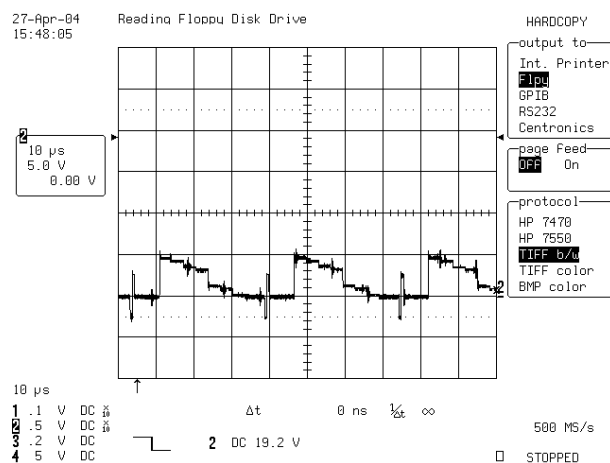
##### - Main IC

- A. IC102: Switching IC (Input: Component Output: Component, HV)
- B. IC121: A/D converter (Input: Component, HV Output: 24bit digital RGB, HV)
- C. IC134: Deinterlacer (Input: 24bit digital RGB, HV Output: 24bit digital RGB, HV)
- D. IC140: Image Processor (Input: 24bit digital RGB, HV Output: 24bit digital RGB, HV)

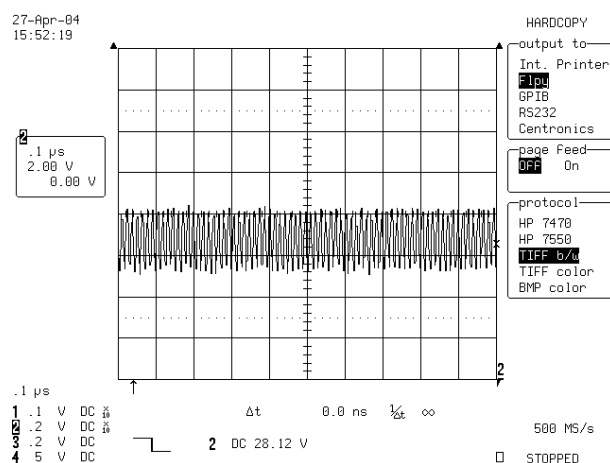
## Description of A/V(MAIN and SUB PCB) and POWER

- Main TP (Input: 480P, Color Bar Pattern)

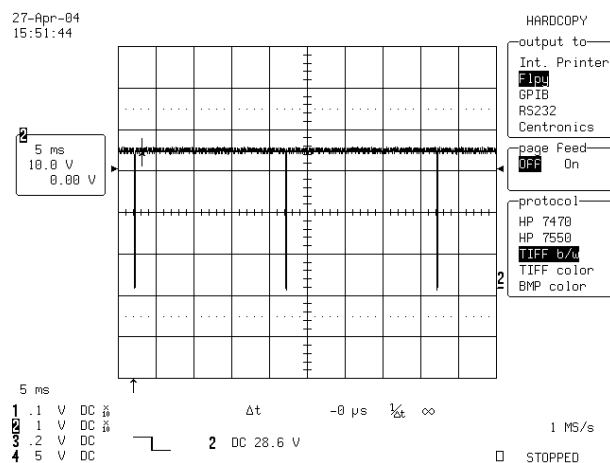
### ◆ TP261: Y signal (Input to IC121)



### ◆ TP134: Clock (output to IC121)

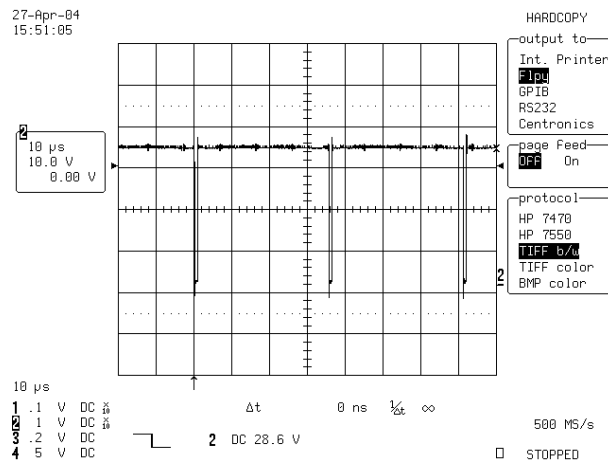


### ◆ TP135: Horizontal sync (output of IC121)



## Description of A/V(MAIN and SUB PCB) and POWER

### ◆ TP136: Vertical sync (output of IC121)



#### 4-2-4. PC (Personal Computer)signal

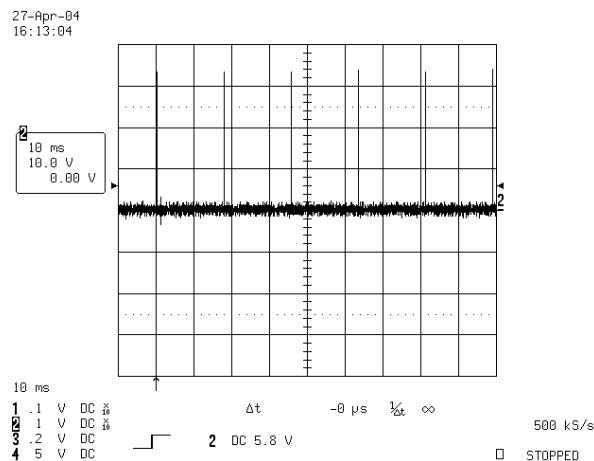
PC signal is switched out by IC109 and input to IC114 for A/D conversion. Then the signal goes through IC140 for digital image processing.

#### - Main IC

- A. IC109: Switching IC (Input: Analog RGB, H, V Output: Analog RGB, H, V)
- B. IC114: A/D converter (Input: Analog RGB, H, V Output: 24bit digital RGB, H, V)
- C. IC140: Image Processor (Input: 24bit digital RGB, H, V Output: 24bit digital RGB, H, V)

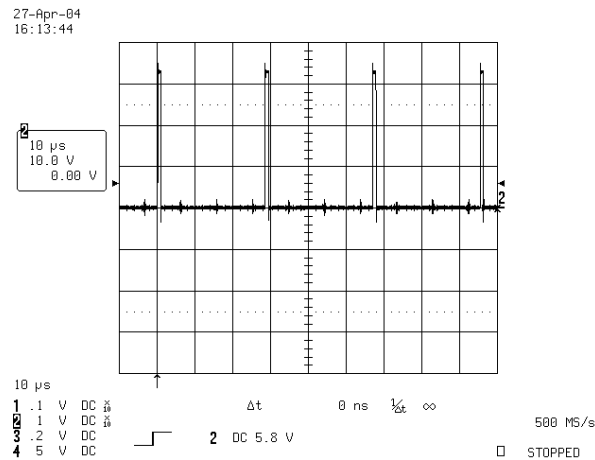
#### - Main TP (Input: Color Bar Pattern)

### ◆ TP130: Vertical sync (output of IC114)

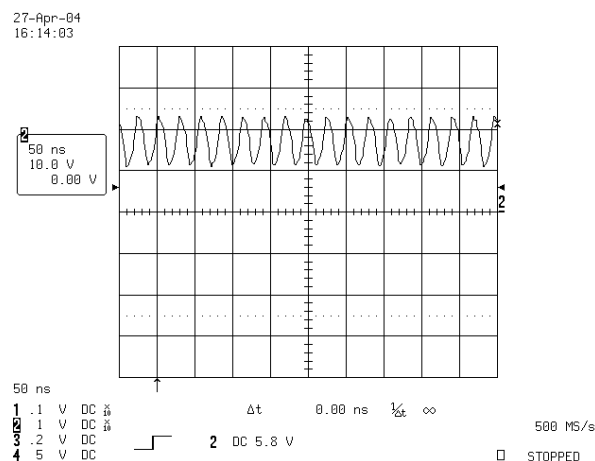


## Description of A/V(MAIN and SUB PCB) and POWER

### ◆ TP128: SYNC for PLL (output of IC114)



### ◆ TP127: Output clock (output of IC114)



#### 4-2-5. DVI(Digital Visual Interface) signal

To process DVI signal, graphic card of AV device reads EDID data from IC101(ROM). Then DVI signal is directly inputted to IC112, which outputs digital 24bit RGB and H, V. The output goes through IC140 for digital image processing.

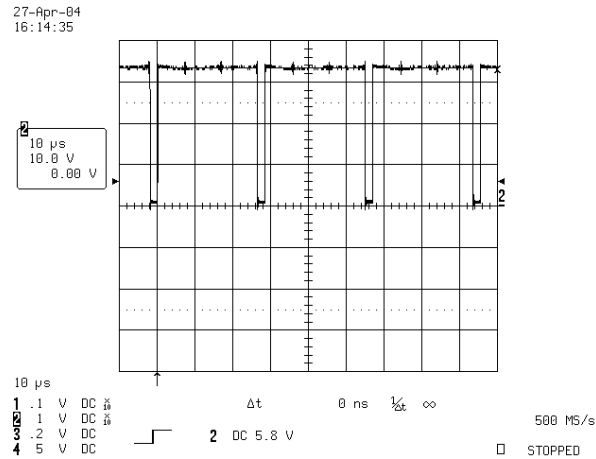
#### - Main IC

- A. IC101: ROM containing EDID data (EDID: display capabilities such as resolution, aspect ratio etc.)
- B. IC112: DVI signal processor (Input: TMDS Output: 24bit digital RGB, H, V)

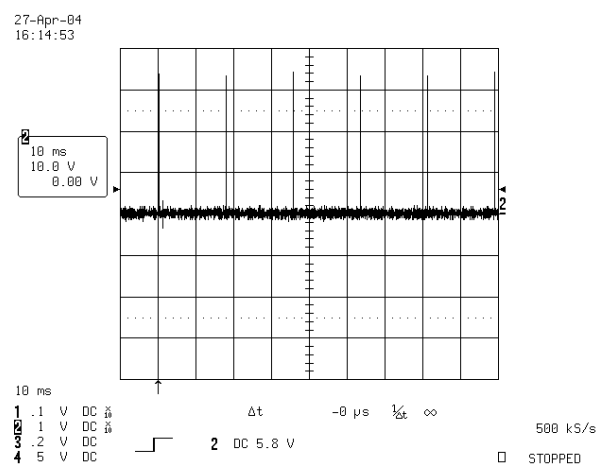
## Description of A/V(MAIN and SUB PCB) and POWER

- Main TP (Input: Color Bar Pattern)

### ◆ TP116: Horizontal sync (output of IC112)



### ◆ TP117: Vertical sync (output of IC112)



#### 4-2-6. Video Enhancer and LVDS transmitter (for all inputs)

Outputs of IC140 are inputted to IC149(video signal enhancer) which improves picture quality greatly. Outputs of IC149 are inputted to IC150 which is a LVDS transmitter. The converted LVDS signal is transmitted to the digital board.

- Main IC

- A. IC149: Video enhancer (Input: 24bit digital RGB, H, V Output: 24bit digital RGB, H, V)
- B. IC150: LVDS transmitter (Input: 24bit digital RGB, H, V Output: LVDS signal)

- Main TP (Input: Color Bar Pattern)

- ◆ TP204: Horizontal sync (output of IC149), refer to TP184
- ◆ TP205: Vertical sync (output of IC149), refer to TP187

## Description of A/V(MAIN and SUB PCB) and POWER

### 4-2-7. Audio signal processing, KEY, and LED

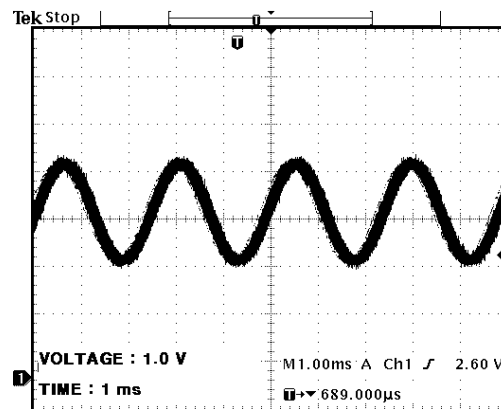
IC104 switches Audio signals and passes a switched signal to IC904 for audio signal processing. IC904 controls sound parameters such as Volume, Balance, and Equalize. The outputs of IC904 are passed to IC901(left), and IC903(right) respectively to amplify the signals. KEY and LED PCBs send signals received from key buttons and LED to IC140 for command processing.

#### - Main IC

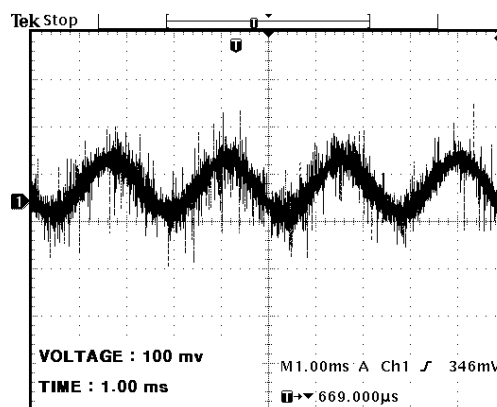
- A. IC104
- B. IC904
- C. IC901, IC903

#### - Main TP (Input: Sound wave 400Hz)

◆ TP\_AUDIO: AUDIO SIGNAL that goes into MSP3420 before AUDIO PROCESSING



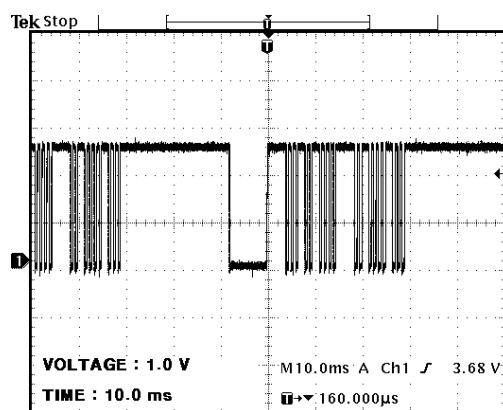
◆ RIGHT (LEFT) : AMP input signal before 30dB amplification





## Description of A/V(MAIN and SUB PCB) and POWER

### ◆ Remote control signal



### 4-3. POWER PCB

#### <Input Source>

- ◆ Rating: AC100V ~ AC240V (Variable Range- AC85V~ AC276V)
- ◆ Regulation Method: Transistor & Switching Method
- ◆ Input Frequency: 50~60Hz (Variable Range- 45Hz ~ 66Hz)
- ◆ Inrush Current: Below 30A at AC264V
- ◆ Output Voltage is shown below.

| No. | Output        | Voltage Rating (V) | Variable Range (V) | Voltage Accuracy (%) <sup>*1</sup> | Current Rating (A) | Ripple/Noise (mVp-p) <sup>*2</sup> |
|-----|---------------|--------------------|--------------------|------------------------------------|--------------------|------------------------------------|
| 1   | Vs            | 175                | 160-190            | ±5V<br>*3                          | 0.4~1.5            | 500/500                            |
| 2   | Va            | 60                 | 50-65              | ±2V                                | 0.01~2.5           | 300/300                            |
| 3   | 5Vcntl        | 5.1                | 4.75~5.25          | ±5%                                | 1.2~4              | 30/200                             |
| 4   | 5V            | 5.1                | 4.75~5.25          | ±5%                                | 0.5~4.5            | 50/200                             |
| 5   | V3<br>(SOUND) | 17                 | -                  | ±7%                                | 0~0.7              | 100/400                            |
|     |               | -17                | -                  | ±7%                                | 0~0.7              | 100/400                            |
| 6   | 33VT          | 33                 | -                  | ±7%                                | 1.5                | 100/400                            |
| 7   | 12V           | 12                 | -                  | ±5%                                | 0.6                | 100/400                            |
| 8   | Vstb          | 5                  | -                  | ±5%                                | 1.5                | 50/200                             |

## Description of A/V(MAIN and SUB PCB) and POWER

### Connector

| Connector number   |    | CN806       | CN805  |
|--------------------|----|-------------|--------|
| Model name         |    | B10P-VH     | B4P-VH |
| Maker              |    | JST         | JST    |
| The number of pins |    | 10          | 4      |
| Pin number         | 1  | ALARM (LVP) | 5Vcntl |
|                    | 2  | GND         | 5Vcntl |
|                    | 3  | GND         | GND    |
|                    | 4  | GND         | GND    |
|                    | 5  | GND         |        |
|                    | 6  | Vd          |        |
|                    | 7  | Vd          |        |
|                    | 8  | NC          |        |
|                    | 9  | Vs          |        |
|                    | 10 | Vs          |        |

| Connector number   |    | CN803       | CN804 (NOT USED) | CN801      |
|--------------------|----|-------------|------------------|------------|
| Model name         |    | YMW025-10R  | YMW025-05R       | YMW025-04R |
| Maker              |    | YEONHO      | YEONHO           | YEONHO     |
| The number of pins |    | 10          | 5                | 4          |
| Pin number         | 1  | 5V Stand-by | 3.3V             | 33VT       |
|                    | 2  | Power       | 3.3V             | GND        |
|                    | 3  | GND         | GND              | +17V       |
|                    | 4  | GND         | GND              | GND        |
|                    | 5  | 5V          | 2.5V             | -17V       |
|                    | 6  | GND         | 2.5V             |            |
|                    | 7  | GND         | GND              |            |
|                    | 8  | 12V         | GND              |            |
|                    | 9  | 12V         |                  |            |
|                    | 10 | NC          |                  |            |

\* CN806 is connected to CN301 of HIGH VOLTAGE PCB.

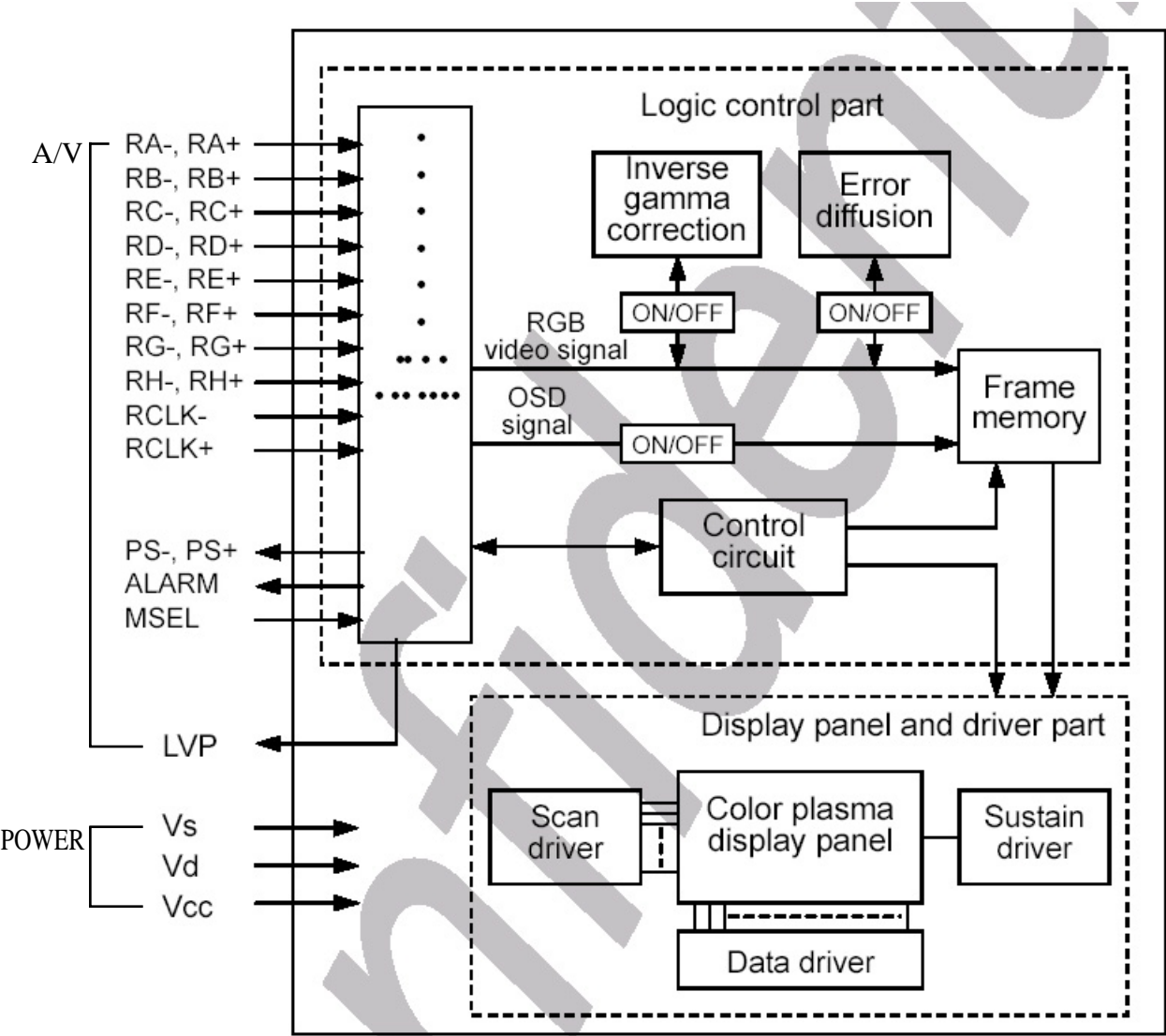
CN805 is connected to CN302 of HIGH VOLTAGE PCB.

CN803 is connected to PC103 of MAIN PCB.

CN801 is connected to PC900 of SUB PCB.

Description of A/V(MAIN and SUB PCB) and POWER

4-4. Interface with PDP Module



< PDP Module >

## 5. SERVICE MODE

### 5.1 Checking initial menu data

#### (1) Check initial data of User Menu

##### 1) Picture

- Mode : Normal

◆ BRIGHTNESS : 32

◆ CONTRAST : 48

◆ COLOR : 32

◆ Tint : 32 (CENTER) \* Not displayed when input signal is PAL or SECAM

◆ Sharpness : 32

- Colour Temp. : Normal

##### 2) Sound

- Balance : 0 (CENTER)

- Effect : Off

- AVC : Off

- Mode : Normal

◆ 120 Hz : 0 (CENTER)

◆ 500 Hz : 0 (CENTER)

◆ 1.5 KHz : 0 (CENTER)

◆ 5 KHz : 0 (CENTER)

◆ 10 KHz : 0 (CENTER)

##### 3) Screen Mode : 16:9

##### 4) Features

- Background : Opaque

- Language : English

- Child Lock : Off

- Enhancer : On

- Auto Power : Off

- Time Setting

◆ Clock : — —:—

◆ Off Timer : Off

◆ Off Time : AM 12:00

◆ Wake Timer : Off

◆ Wake Time : AM 12:00

◆ Wake Pro. : 1

◆ Wake Vol. : 20

- ISM

◆ Pixel Shift : Off

◆ Low Bright : Off

- Initialize

## SERVICE MODE

### 5) Install(TV input only)

- Auto Setup
- Edit
- Manual Setup

## 5-2 Entering SERVICE MODE

To enter SERVICE MODE

Press “◀VOL” => “MUTE” => “RECALL” => “MUTE” BUTTON of Remote Controller

### (1) Check initial data of Service mode

#### 1) PW 181-1

[Note] Initial data of Service Mode can be different depending on Micom(firmware) version.  
The actual data applied to each set is equal to the data of when executing “Service Mode->Reset->Level 1”

- Sub Brt : 24
- Sub Cont : 8
- Bias R : 32
- Bias G : 32
- Bias B : 32
- Gain R : 14
- Gain G : 16
- Gain B : 16

#### 2) PW 181-2

- DVI Brt : 16
- DVI Cont : 0
- Sharp Filter : Normal

#### 3) VPC 3230

- Comm Brt : 139
- Comm Cont : 44
- Comm Peak : 3
- CVBS Color : 112
- CVBS Tint : 128
- Comp Brt : 196
- Comp Cont : 28
- Comp Cb : 23
- Comp Cr : 29
- Comp Tint : 32

#### 4) 9883\_G

- Bias R : 64
- Bias G : 64
- Bias B : 64
- Gain R : 128
- Gain G : 128
- Gain B : 128

#### 5) 9883\_V

- Bias Cr : 64

## SERVICE MODE

- Bias Y : 60
- Bias Cb : 64
- Gain Cr : 128
- Gain Y : 128
- Gain Cb : 128
- 6) MDIN 150
  - Bright : 128
  - Contrast : 64
  - Color : 64
  - NR : Off
- 7) Enhncr
  - B&W : ON
  - FCT : ON
  - ACR : ON
  - Gamma : ON
  - Dither : ON
  - SEISAI : ON
- 8) MSP 34xx
  - Sc pScale : 21
  - FM pScale : 25
  - NC pScale : 51
- 9) M2
  - Contrast : 1
  - H Posi Full : 30
  - Language : 0
  - Option : 2
  - CIK Full C40 : 0
  - CIK Full C56 : 0
  - Vposi Full : 132
- 10) Misc
  - Tst Ptrn : AT
  - Tst Ptrn : MA
  - AT Search ON : ON
  - TV AT OFF : ON
- 11) Info (firmware version information)
- 12) Reset
  - Level 1
  - Level 2
  - Factory
- 13) Panel (NEC 42" SD)
  - 50Hz Mode : STD1
  - 60Hz Mode : STD1
  - Frame Conv : Off
  - Long Life : Off
  - Gamma : On
  - ED : On

## SERVICE MODE

### 5-3. Description of SERVICE MODE Items

- 1) PW181-1 : Image processor control values. Mainly used to adjust White balance.  
[Note] These values need to be adjusted only after replacing MAIN PCB. These values may vary from set to set. Therefore if these values are recorded before replacing MAIN PCB, you do not need to adjust WHITE BALANCE additionally.  
  - (1) Sub Brt : For BRIGHTNESS adjustment (All inputs)
  - (2) Sub Cont : For CONTRAST adjustment (All inputs)
  - (3) Bias R : For R BRIGHTNESS adjustment (All inputs)
  - (4) Bias G : For G BRIGHTNESS adjustment (All inputs)
  - (5) Bias B : For B BRIGHTNESS adjustment (All inputs)
  - (6) Gain R : For R CONTRAST adjustment (All inputs)
  - (7) Gain G : For G CONTRAST adjustment (All inputs)
  - (8) Gain B : For B CONTRAST adjustment (All inputs)
- 2) PW181-2 : Additional PW181 control values  
[Note] The following values do not need to be adjusted after replacing MAIN PCB. Therefore you do not need to change initial values..  
  - (1) DVI Brt : For BRIGHTNESS adjustment (DVI)
  - (2) DVI Cont : For CONTRAST adjustment (DVI)
  - (3) Sharp Filter : For SHARPNESS adjustment (Video, S-video)
- 3) VPC3230 : VIDEO DECODER control values. Used to adjust picture quality of VIDEO/S-VIDEO inputs.  
[Note] The following values do not need to be adjusted after replacing MAIN PCB. Therefore you do not need to change initial values.  
  - (1) Comm Brt : For BRIGHTNESS adjustment (Video, S-video, Caption)
  - (2) Comm Cont : For CONTRAST adjustment (Video, S-video, Caption)
  - (3) Comm Peak : For SHARPNESS adjustment (Video, S-video, Caption)
  - (4) CVBS Color : For COLOR adjustment (Video, S-video)
  - (5) CVBS Tint : For TINT adjustment (Video, S-video)
  - (6) Comp Brt : For BRIGHTNESS adjustment (Caption only)
  - (7) Comp Cont : For CONTRAST adjustment (Caption only)
  - (8) Comp Cb : For Color (Cb) adjustment (Caption only)
  - (9) Comp Cr : For Color (Cr) adjustment (Caption only)
  - (10) Comp Tint : For TINT adjustment (Caption only)
- 4) 9883\_G : Graphic port A/D converter control values. Used to adjust picture quality of PC input.  
[Note] The following values do not need to be adjusted after replacing MAIN PCB. Therefore you do not need to change initial values.

## SERVICE MODE

- (1) Bias R : For R BRIGHTNESS adjustment (PC)
  - (2) Bias G : For G BRIGHTNESS adjustment (PC)
  - (3) Bias B : For B BRIGHTNESS adjustment (PC)
  - (4) Gain R: For R CONTRAST adjustment (PC)
  - (5) Gain G: For G CONTRAST adjustment (PC)
  - (6) Gain B: For B CONTRAST adjustment (PC)
- 5) 9883\_V : Video port A/D converter control values. Used to adjust picture quality of Component inputs.  
 [Note] The following values do not need to be adjusted after replacing MAIN PCB. Therefore you do not need to change initial values.
  - (1) Bias Cr : For Cr BRIGHTNESS adjustment (Component)
  - (2) Bias Y : For Y BRIGHTNESS adjustment (Component)
  - (3) Bias Cb : For Cb BRIGHTNESS adjustment (Component)
  - (4) Gain Cr : For Cr CONTRAST adjustment (Component)
  - (5) Gain Y : For Y CONTRAST adjustment (Component)
  - (6) Gain Cb : For Cb CONTRAST adjustment (Component)
- 6) MDIN150 : Used to adjust DEINTERLACE performance. Affect component & video input.  
 [Note] The following values do not need to be adjusted after replacing MAIN PCB. Therefore you do not need to change initial values.
  - (1) Bright : For BRIGHTNESS adjustment (Video, S-video, Component)
  - (2) Contrast : For CONTRAST adjustment (Video, S-video, Component)
  - (3) Color : For COLOR adjustment (Video, S-video, Component)
  - (4) NR : Noise Reduction Filter adjustment (Video, S-video, Component)
- 7) Enhncr : Picture Quality Enhancer. Used to adjust picture quality for all inputs.  
 [Note] The following values do not need to be adjusted after replacing MAIN PCB. Therefore you do not need to change initial values.
  - (1) B&W : Black & White Stretch ( ON: enables B Emph, W Emph, and G Emph)
  - (2) FCT : Favorite Color Technology
  - (3) ACR : Accurate Color Reproduction
  - (4) Gamma : Video Inverse Gamma(=1.47) Correction
  - (5) Dither : Error Diffusion
  - (6) SEISAI : Random dither pattern masking
- 8) MSP34xx : Sound processor  
 [Note] The following values do not need to be adjusted after replacing MAIN PCB. Therefore you do not need to change initial values.
  - (1) Sc pScale : Prescale adjustment for external input(Video, Component, PC, DVI etc.)
  - (2) FM pScale : FM/AM prescale adjustment
  - (3) NC pScale : NICAM prescale adjustment
- 9) M2 : Teletext decoder
  - (1) Contrast : Text Contrast
  - (2) H Posi Full : Adjust H position in Full Text
  - (3) Language

### Teletext Language Group Table

|   |  |
|---|--|
| 0 | West Europe(England/France/Sweden/Czech/Germany/Spain/Italy)           |
| 1 | East Europe(Poland/France/Sweden/Czech/Germany/Slovenia/Italy/Romania) |
| 2 | Turkish/Greek(England/France/Sweden/Turkey/Germany/Spain/Italy/Greece) |
| 3 | Cyrillic   |
| 4 | ARAB/HEBREW  |
| 5 | FARSI ALL  |



## SERVICE MODE

- (4) Option
  - 0 : Top
  - 1 : Flop
  - 2 : Top & Flop
- (5) CIK Full C40 : Adjust pixel clock in half text 40 column text
- (6) CIK Full C56 : Adjust pixel clock in half text 56 column text
- (7) Vposi Full : Adjust V position in Full Text

### 10) MISC

- (1) TST PTRN AT : Cycled patterns from R G B WH every 1 minute automatically.
- (2) TST PTRN MA : Cycled patterns from BK WH R G B by pressing volume up key
- (3) AT Search ON : Auto program search and sorting.
- (4) TV AT OFF : When in TV mode and no signal is detected for 30 min, the set is turned off automatically.

### 11) INFOR : MICOM(firmware) version information

(year 4 digits, month 2 digits, date 2 digits and time 4 digits : e.g. 200409221030 )

### 12) RESET

- (1) LEVEL 1: Reset all values (service mode & user menu).
- (2) LEVEL 2: Reset all except PW181-1 values
- (3) FACTORY: Reset user menu values

### 13) PANEL

- (1) 50Hz Mode :
  - STD1 : Standard Mode 1 (Peak Luminance 100%, False Contour Good)
  - STD2: Standard Mode 2 (Peak Luminance 100%, False Contour Bad)
  - HIQ1: High Image Quality Mode 1 (Peak Luminance 70%, False Contour Very Good)
  - HIQ2: High Image Quality Mode 2 (Peak Luminance 70%, False Contour Good)
- (2) 60Hz Mode :
  - STD1: Standard Mode 1 (Peak Luminance 100%, False Contour Good)
  - STD2: Standard Mode 2 (Peak Luminance 100%, False Contour Bad)
  - HIQ1: High Image Quality Mode 1 (Peak Luminance 70%, False Contour Very Good)
  - HIQ2: High Image Quality Mode 2 (Peak Luminance 70%, False Contour Good)
- (3) Frame Conv :
  - Off: Input Vsync Frequency = Panel Display Vsync Frequency
  - On: Panel Display Vsync Frequency Fixed (=60Hz)
- (4) Long Life : Safety Mode(Low Peak Luminance)
- (5) GAMMA : Panel Inverse Gamma Correction
- (6) ED : Panel Error Diffusion

## 6. Adjusting Method

### 6-1. WHITE BALANCE Adjustment

- 1) Apply 5 Step Gray Scale pattern to Video input terminal (Pattern generator: MIK 7253S)

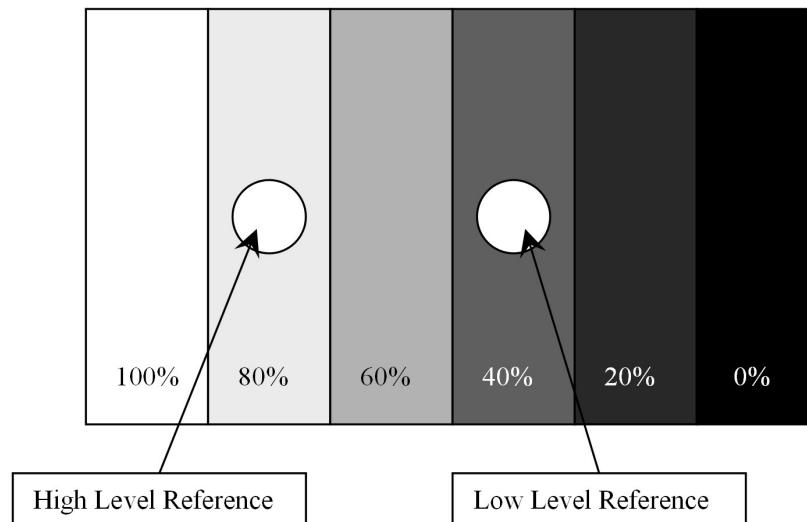


Figure 6-1 Step Gray Scale Pattern

- 2) Check initial data from USER CONTROL (refer to 5-1)
- 3) In order to start Service mode, press button in following order “◀Vol -> Mute -> Recall (Display) -> Mute” of the remote control. And then select PW181-1 for checking initial data of the SERVICE MODE (refer to 5-2).
- 4) Attach the sensor of White Balance Meter (CA-100) to the 80% white level of the screen.
- 5) Adjust White Balance by controlling R, G, B GAIN.
  - Control R, G, B GAIN values so that the ranges are within DP (Default Value)  $\pm 10$ . If the gains are deviated from the range, the SET is disqualified.
  - Set color coordinate to  $x=0.285 \pm 0.005$ ,  $y=0.275 \pm 0.005$ , and the Color Temperature to greater than 10,000° K.
- 6) Attach the sensor of White Balance Meter to 40% of white level on the screen
- 7) Adjust White Balance by varying the values of R,G, B BIAS.
  - Control R, G, B BIAS values so that the ranges are within “Default Value”  $\pm 5$ . If deviate from the range, classify the SET disqualified.
  - Set color coordinate to  $x=0.285 \pm 0.005$ ,  $y=0.285 \pm 0.005$ .
- 8) Repeat from 4) to 7) until color coordinate is  $x=0.285 \pm 0.005$ ,  $y=0.275 \pm 0.005$ , and then adjust Sub Contrast for that the luminance is above or equal to 150 Cd/m<sup>2</sup> when the sensor of White Balance Meter is attached to 100% of white level on the screen.
- 9) To exit the Service mode, press Menu button of the remote control.

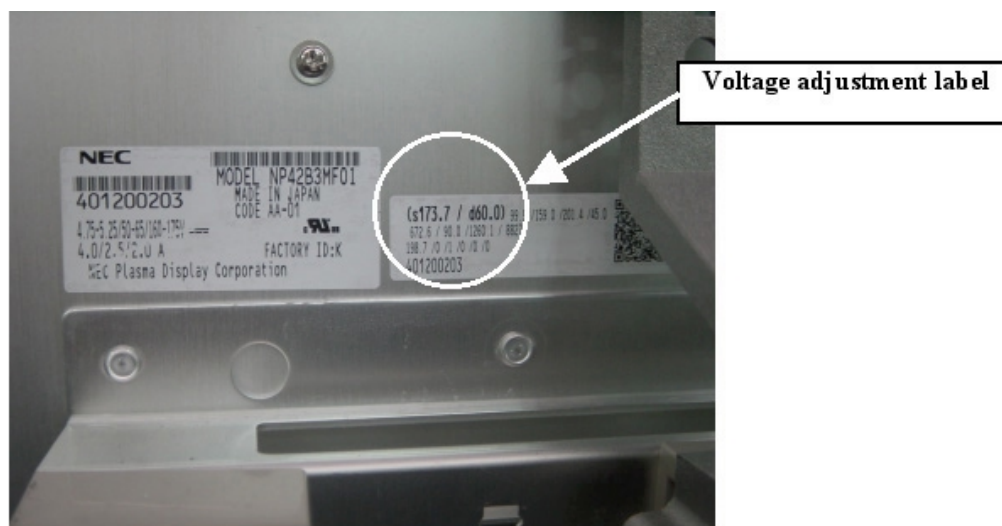
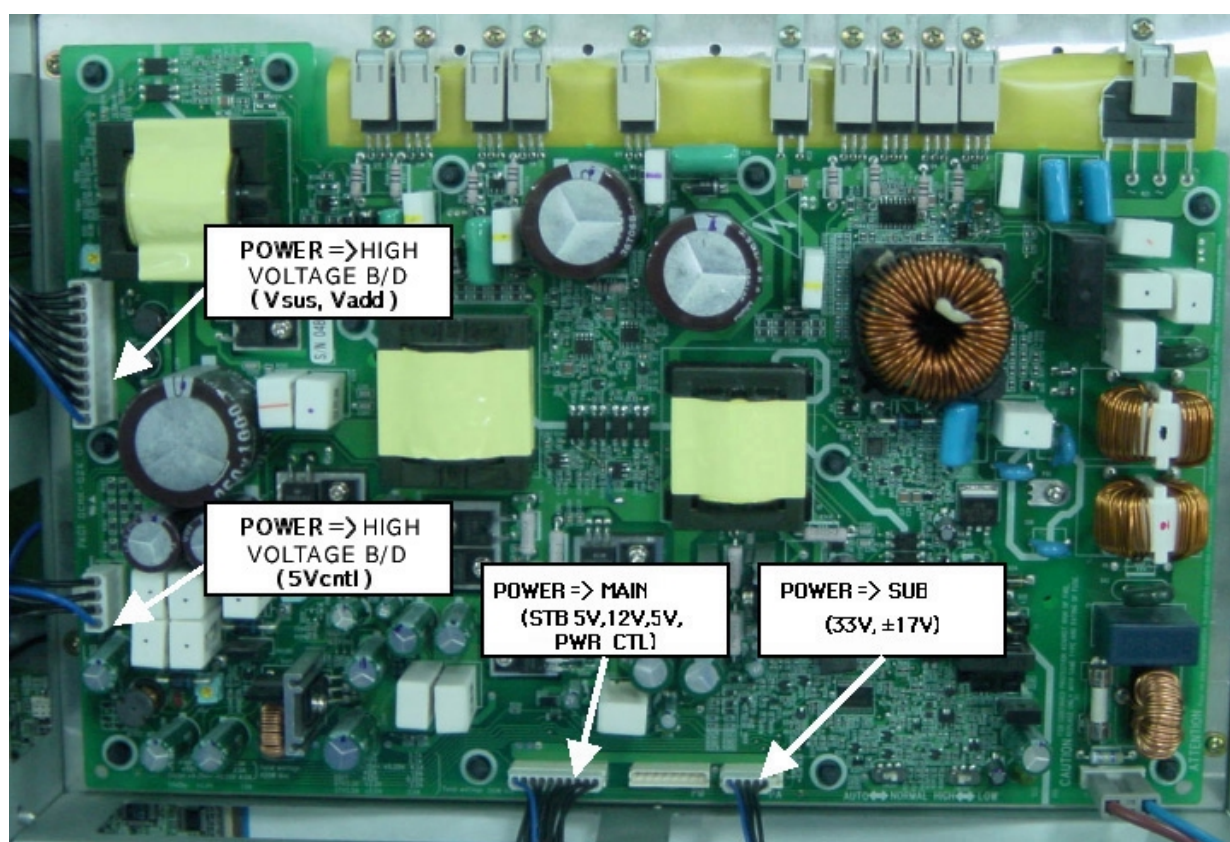
## Adjusting Method

### 6-2. POWER ADJUSTMENTS

- ◆ Video pattern condition: 100 IRE Full White Pattern
- ◆ Power Adjustment is controlling the panel values set by module maker previously. If there is problem after power adjustment, classify as a defect and contact PDP module maker.

#### 1. Vs (V<sub>sus</sub> Voltage): Sustain Voltage

- ◆ Measurement equipment : Digital Volt Meter ( DC Volt mode )
- ◆ Adjusting TP : TP204 (See Picture 6-2)
- ◆ Adjusting Voltage : The voltage which is written at upper center of DATA BAR in PDP Module. (Typical Voltage: 175 V, See Picture 6-1)



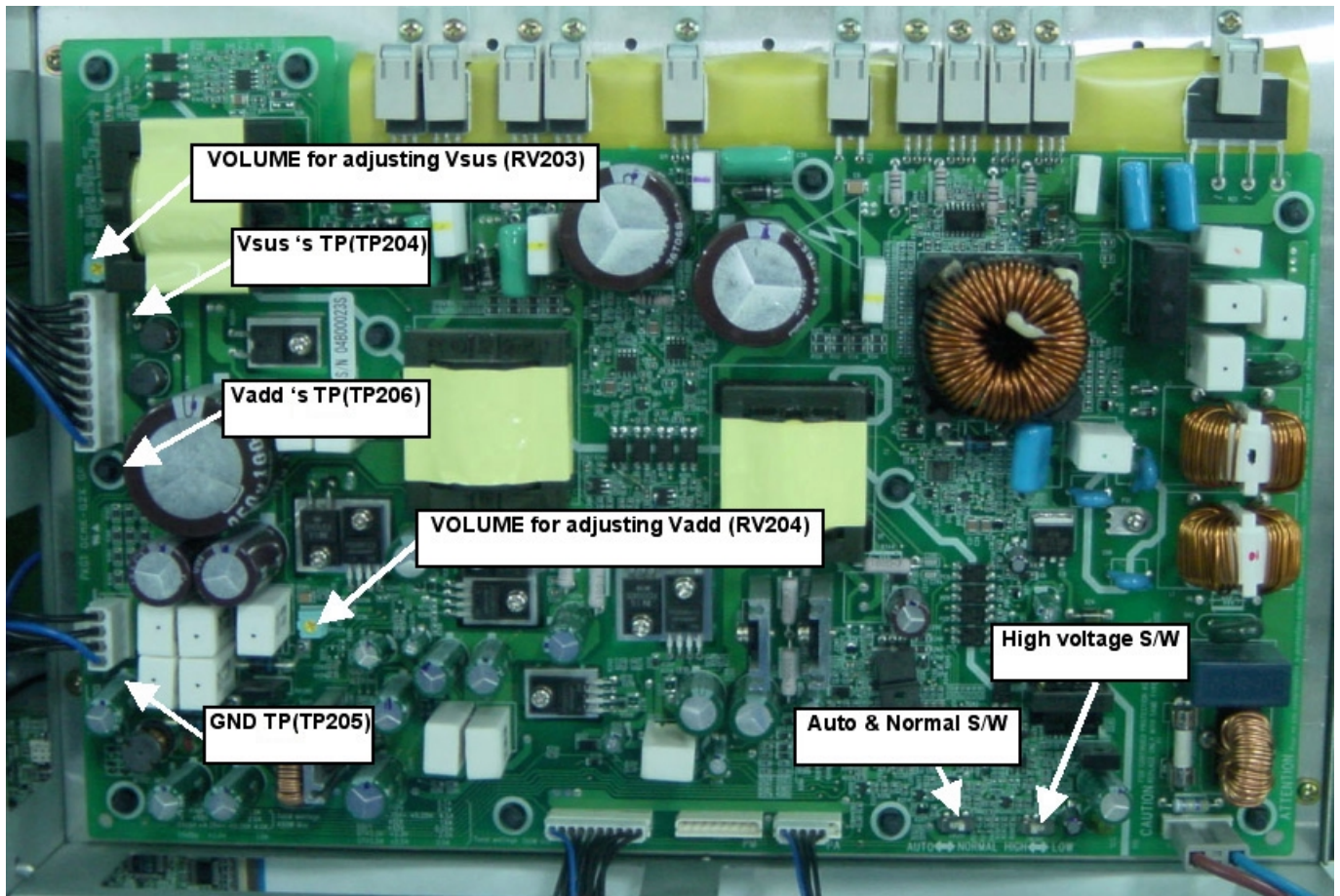
Picture 6-1. Power Connection and Voltage Adjustment Label



## Adjusting Method

### 2. Vd (Vadd Voltage) : DATA Input Voltage

- ◆ Measurement equipment : Digital Volt Meter ( DC Volt mode )
- ◆ Adjusting TP : TP206 (See Picture. 6-2)
- ◆ Adjusting VOLUME:
- ◆ Adjusting Voltage : The voltage which is written at upper center of DATA BAR in PDP Module.  
(Typical Voltage: Picture - Picture. 6-2)



Picture. 6-2 Power Adjustment Points

< Note >

#### 1. Auto & Normal S/W

This switch is used to test power board therefore for normal operation always set it to “NORMAL”.  
Do not touch while operating

#### 2. High voltage S/W

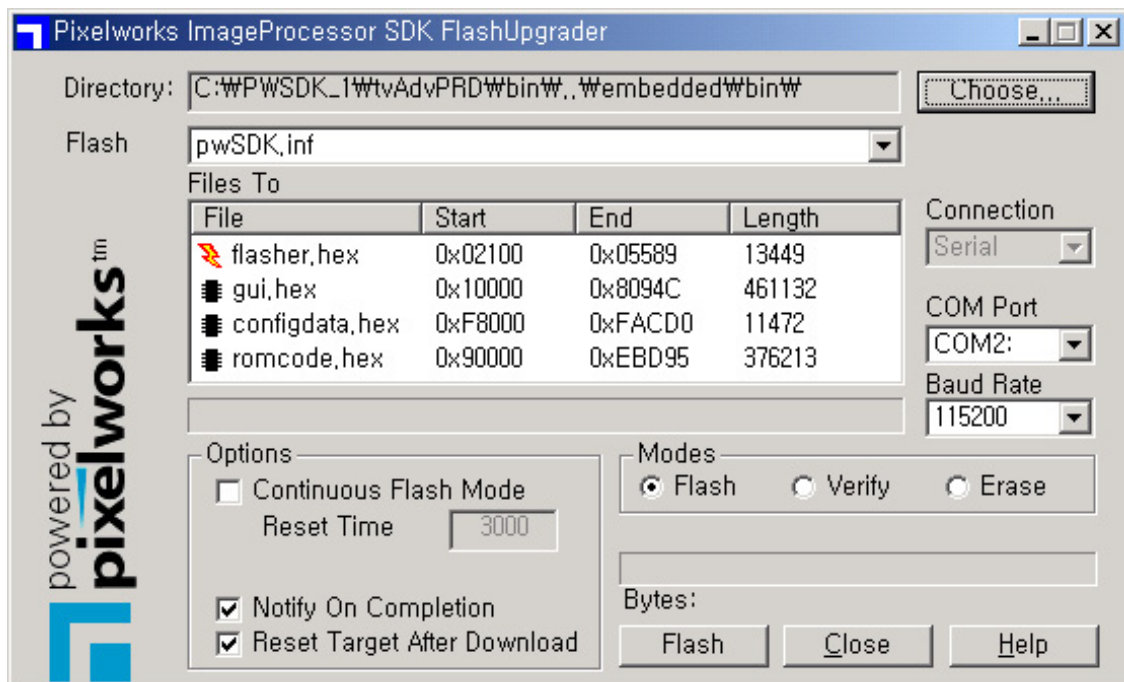
Do not touch while operating

#### 3. When replacing a power board make sure to check these switches.

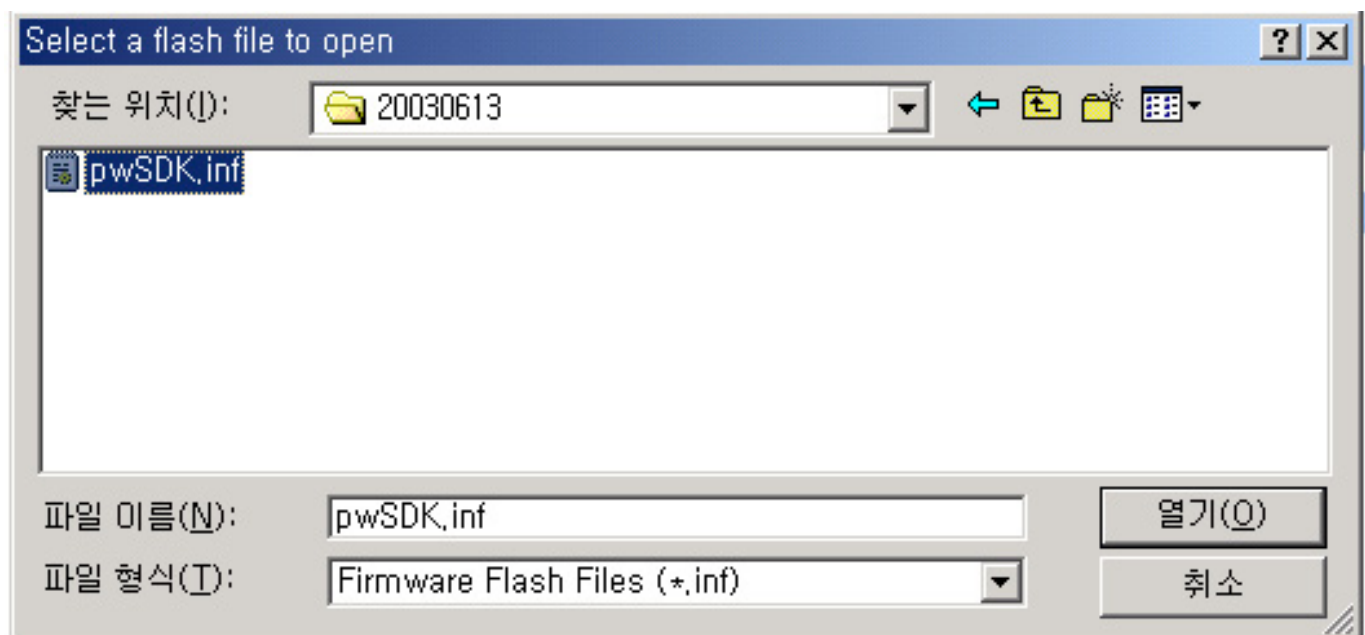
- High voltage S/W -> “HIGH”
- Auto & Normal S/W -> “NORMAL”

## 7. SOFTWARE UPGRADE Method

1. Check whether MAIN PCB is connected to SUB PCB(JP117 to JA109).
2. Connect 9-PIN serial cable to the serial port of the computer.
3. Connect the opposite end of the serial cable to RS-232C port of SUB PCB.
4. Run Flashupgrader.exe in the PC to excute the program as shown below.

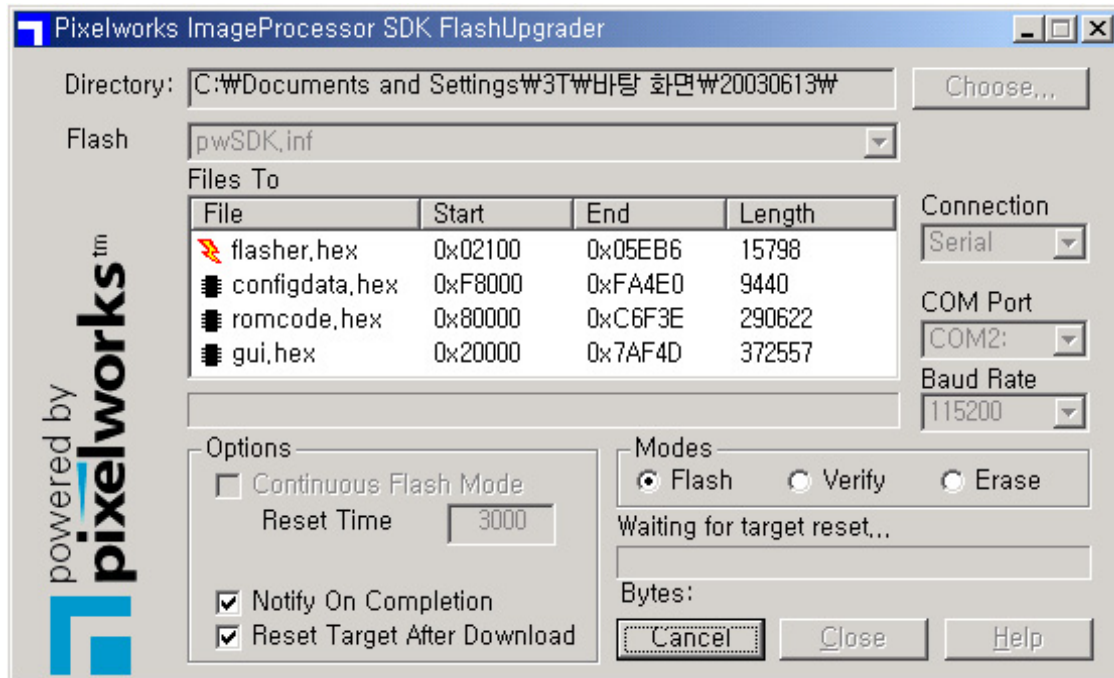


5. Select current Upgrade file
  - Click "Choose..." button to select the file you want to upgrade.
  - Select the file (pwSDK.inf) that you want to upgrade.

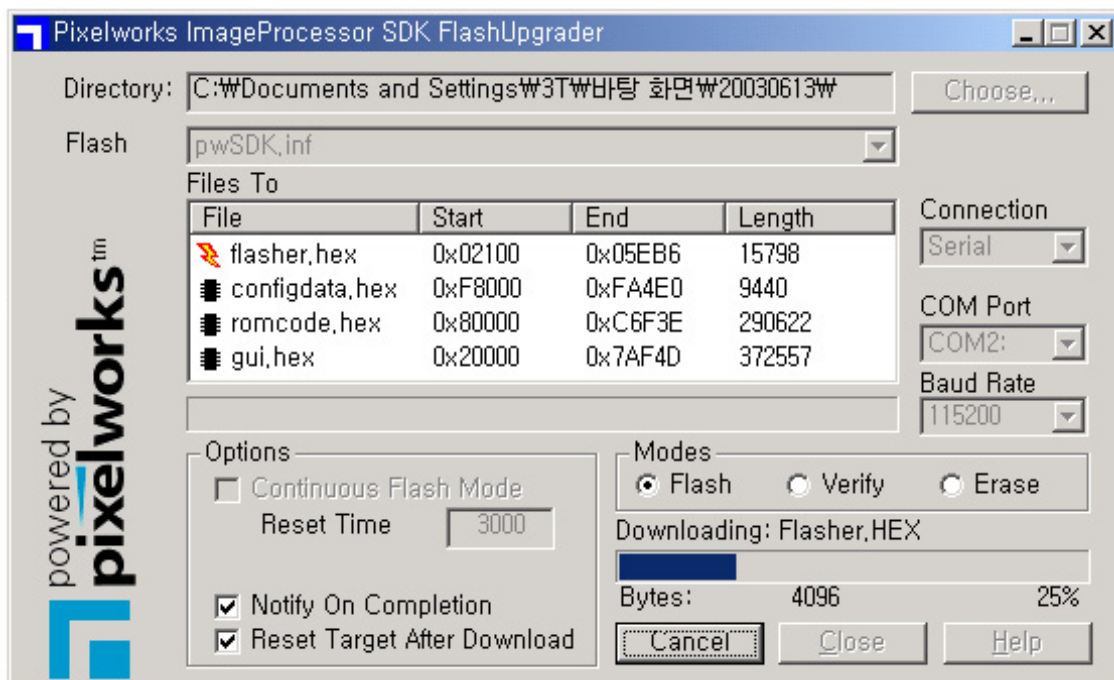


## SOFTWARE UPGRADE Method

6. Select correct COM Port and Baud Rate(115200) as shown below. Then press Flash button to finish setup.

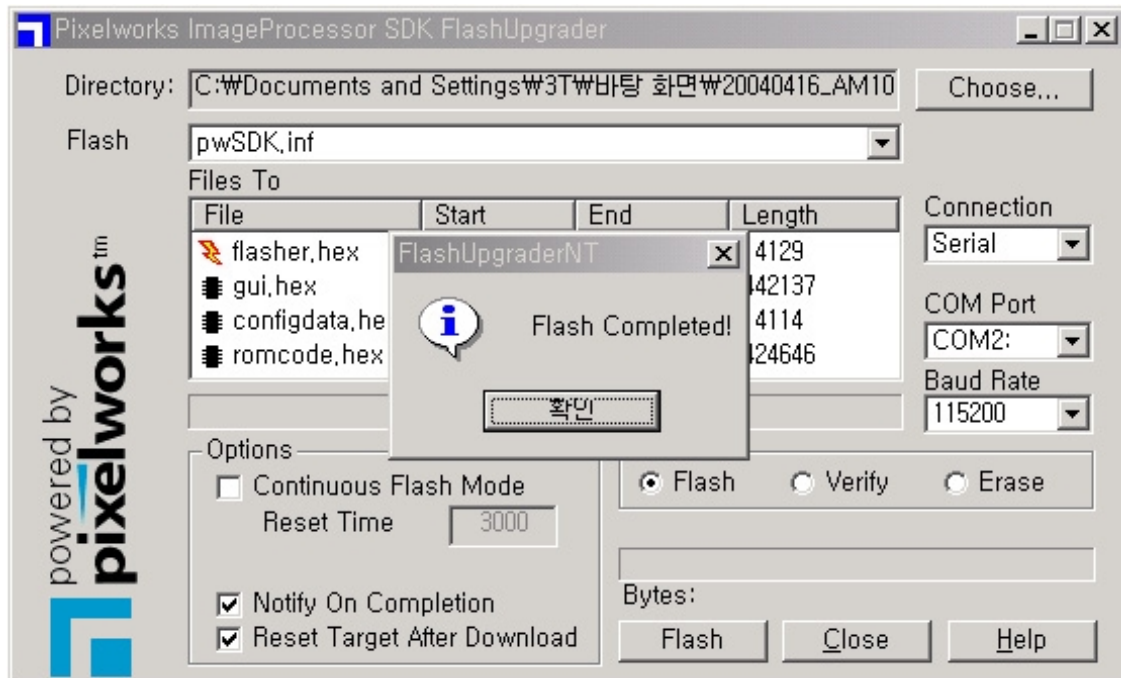


7. Turn on the ac power and then upgrade program will start the download as shown below.



## SOFTWARE UPGRADE Method

8. When the upgrading is complete, a window (below) will be opened. Press “Finish” button to complete the process.





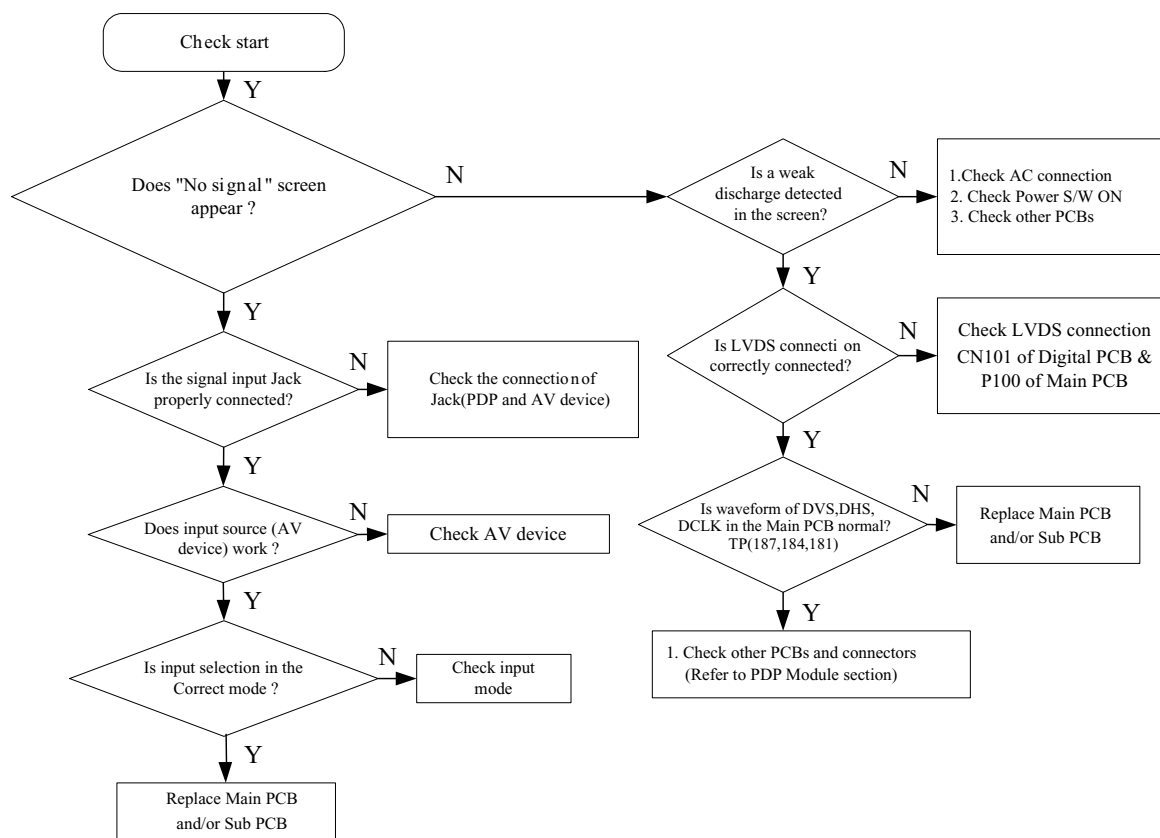
## 8. Main PCB Trouble Diagnosis

### 8-1. MAIN & SUB PCB Trouble Diagnosis

[NOTE] Refer to “PDP MODULE” section for trouble diagnosis other than MAIN, SUB and POWER PCB.

#### 1. Common checking process when “No signal” or “No raster”

(No signal: OSD is working but no images are displaying, No raster: Not even OSD is displaying)



#### 2. When “No signal” in Video, S-VIDEO, and Component modes.

(1) First check if PC input is working.

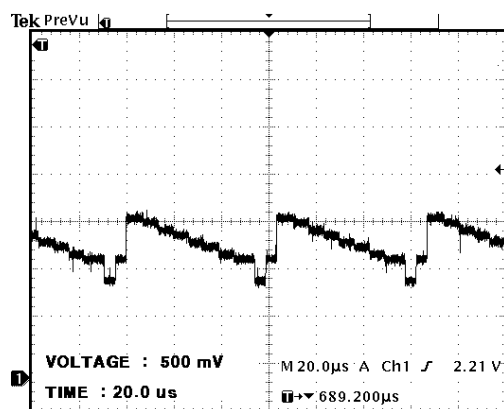
- If PC is not working replace MAIN PCB.
- For detail examination, with an oscilloscope check TP188, TP184 and TP187 signal explained in A/V block section.
- If TP188, TP184 or TP187 signal does not appear, replace MAIN PCB.

(2) Checking waveforms with COLOR BAR pattern(for detail examination only)

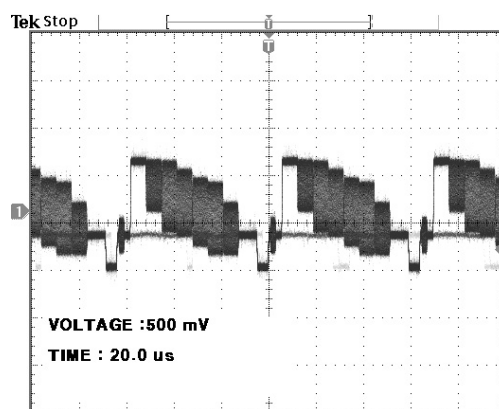


## Main PCB Trouble Diagnosis

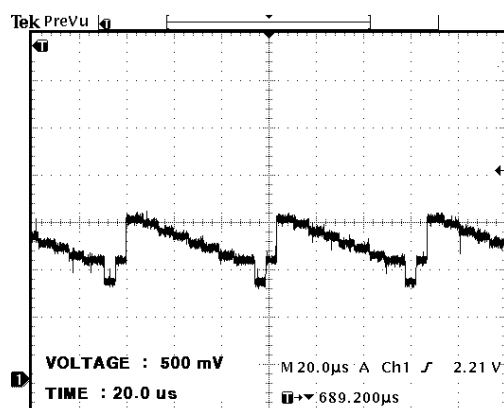
- ◆ When Y Cb Cr input : TP261 located in the center of the PCB near IC121.



- ◆ COMPOSITE Input : Check Positive polarity of CE203 located near IC132.



- ◆ S- VHS input : Check Negative polarity of CE284 located near IC159.



→ If above signals do not appear, MAIN PCB needs to be replaced.

(3) With Video or S-Video inputs

Check TP138(V sync), TP139(H sync)

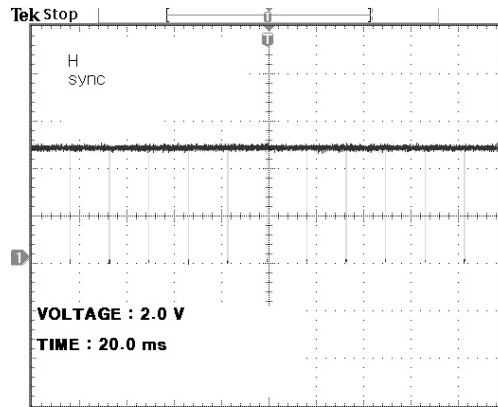
→ If signals do not appear, replace MAIN PCB.

## Main PCB Trouble Diagnosis

### (4) With Component inputs

Check TP136(V sync), TP135(H sync)

→ If signals do not appear, replace MAIN PCB.



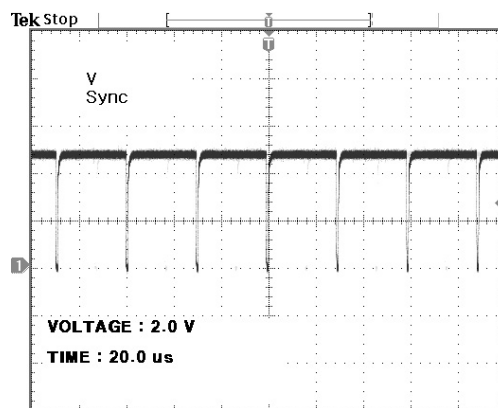
### 3. When DTV (1080i, 720P, 480P) signal do not appear on screen

(1) Input PC or VIDEO signal and see if PC or VIDEO images are displaying.

→ If “no signal”, check TP188, 187 and 184.

→ If DCLKB, DHS and DVS signal do not appear, replace MAIN PCB.

(2) Check TP136(V sync), TP135(H sync) <when 1080i >



→ If above signals do not appear, replace MAIN PCB.

### 4. When PC signal do not appear on screen

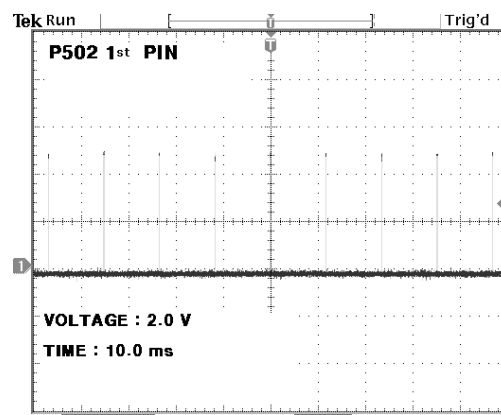
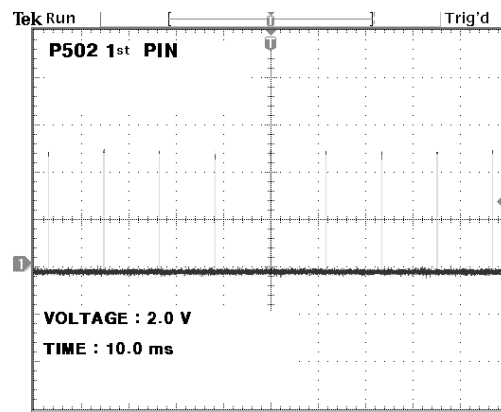
(1) Input DTV or VIDEO signal and see if DTV or VIDEO images are displaying.

→ If “No signal”, check TP188, 184 and 187.

→ If TP188, 184 and 187 signal do not appear, replace MAIN PCB.

(2) Check TP124 (V SYNC), TP125 (H SYNC) (when 800 X 600).

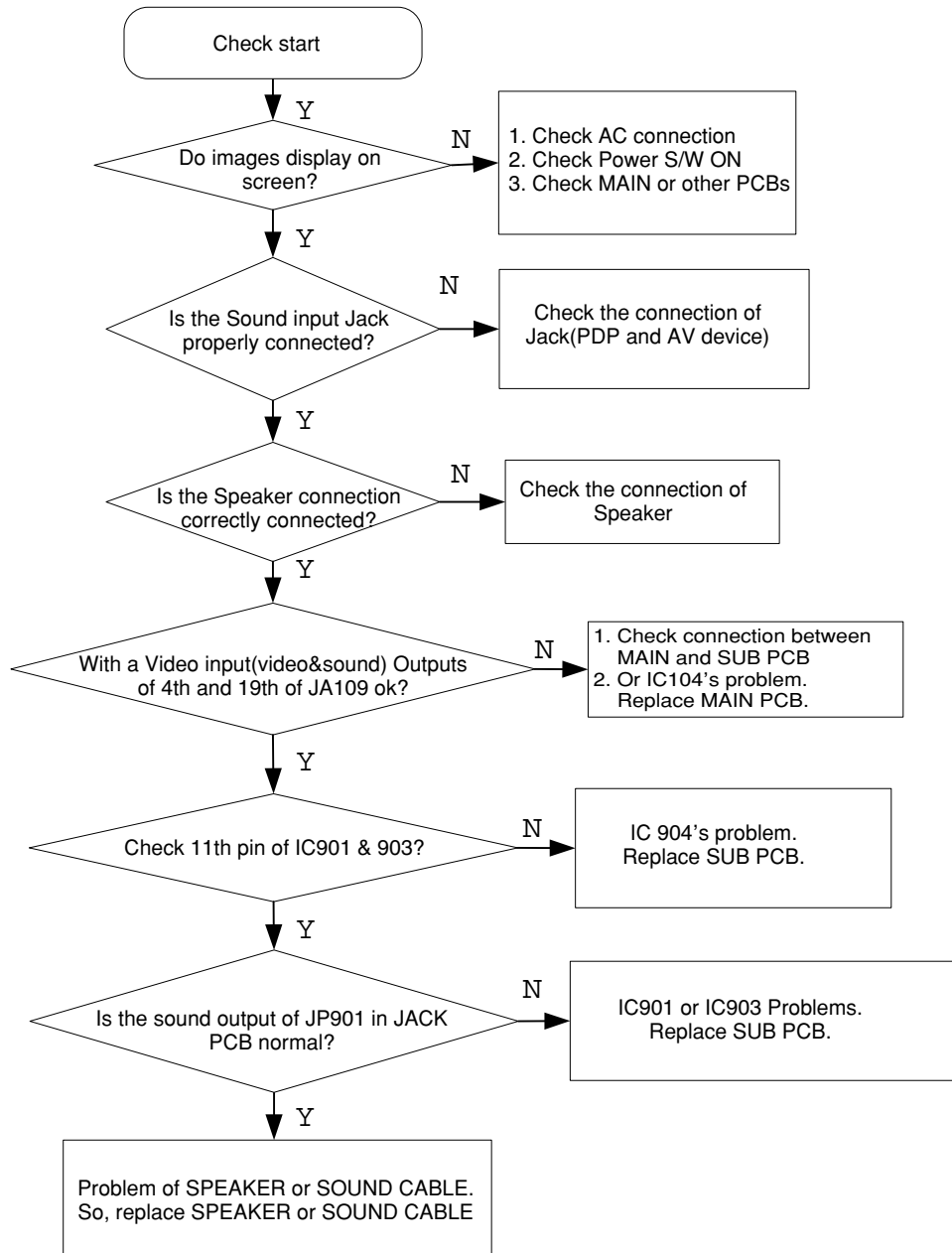
## Main PCB Trouble Diagnosis



→ If above signal do not appear, replace MAIN PCB.

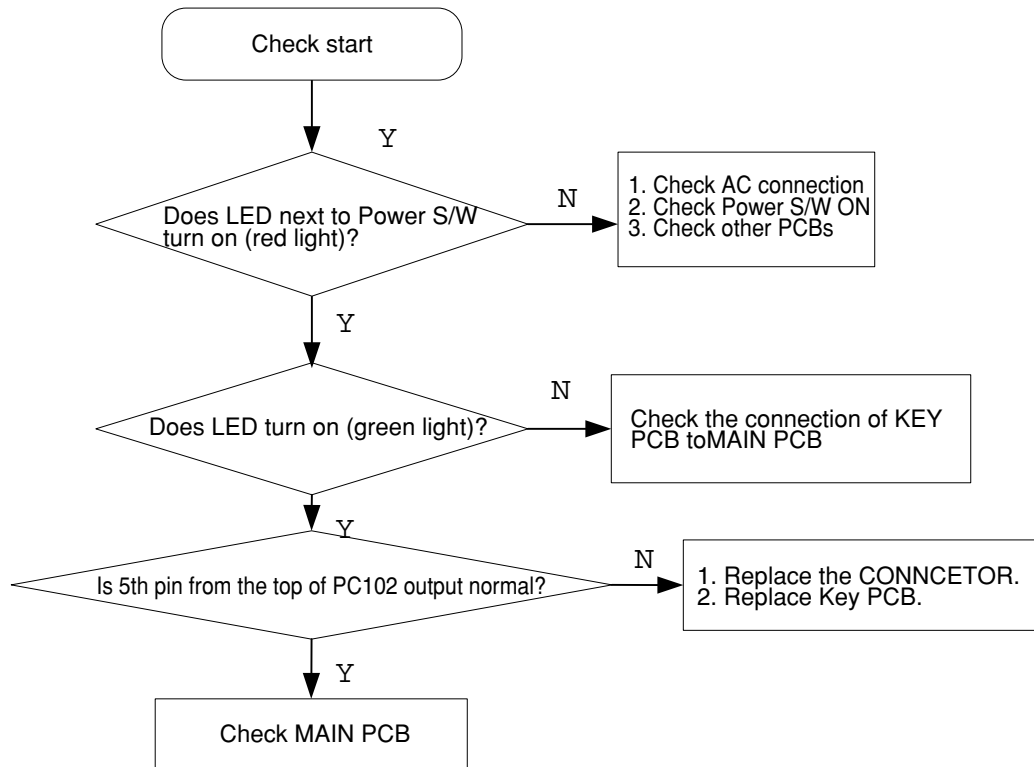
## Main PCB Trouble Diagnosis

### 5. When No Sound



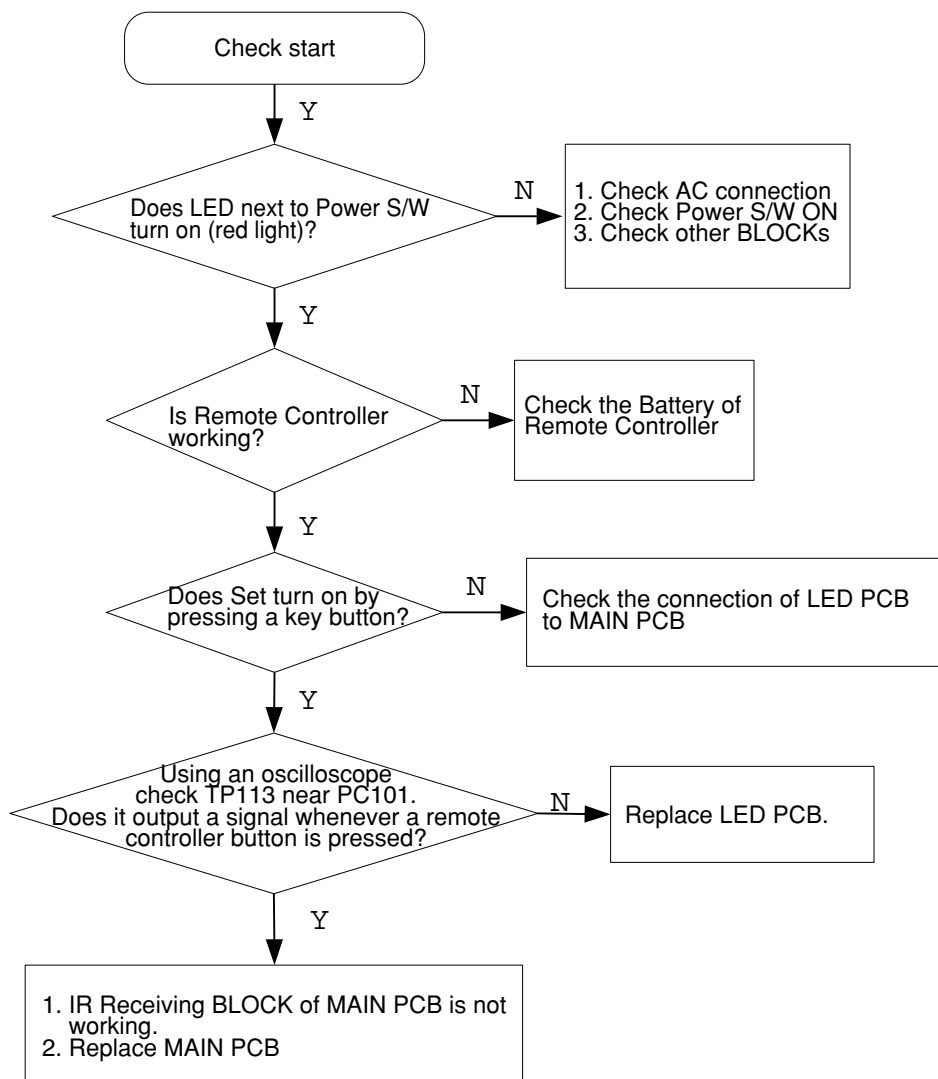
## Main PCB Trouble Diagnosis

### 6. When Key does not operate



## Main PCB Trouble Diagnosis

### 7. When Remote Controller does not operate



## Main PCB Trouble Diagnosis

### 8-2. POWER PCB Trouble Diagnosis

- ◆ After checking High Voltage Board / Scan Relay Board / Data Relay Board (refer to II. PDP MODULE), and the set still does not operate, then check if the following Power PCB's Trouble Symptoms appear.
  - After unplugging Power Connectors of Power PCB (CN806 and CN805) and checking remaining voltage, there still exist several tens of remaining voltage.
  - When output condition of Power PCB is set to low-voltage, output voltage table lists 3~7 are NOT normal. Or when set to high-voltage, output voltage table list 1~2 are NOT normal. (Refer to 4-3)
  - When output condition of Power PCB is set to low-voltage, output voltage table lists 3~7 are normal. But when set to high-voltage, output voltage table list 1~2 are NOT normal. (Refer to 4-3)
  - After turning on the PDP set with Remote Controller when output condition of Power Module is set to high-voltage, the LED turn "Green" but the "Power Shut Down" happens after 2~3 seconds.
- ◆ If high voltage ( $V_{sus}$ ,  $V_{add}$ ) measured from Power PCB is different from that of optimum adjusting voltage label, re-adjust the voltages referring to "I. 6-2. POWER Adjustments"

## 9. TROUBLE DIAGNOSIS

[NOTE] Refer to “PDP MODULE” section for module diagnosis.

\* Refer to Chapter II for Symptoms of other parts with exception of MAIN, SUB PCB and POWER PCB Trouble.

### 9-1. Facts you must know when trouble diagnosing or repairing

- (1) Trouble diagnosing and repairing of set mean find out which PCBs or blocks are not working and replace them with new PCBs. Repairing the broken PCBs are not necessary. Keep the broken PCBs and return them to service center or R&D center.
- (2) This TROUBLE DIAGNOSIS list only contains representative and simple PCB trouble diagnosis and Module Exchange method. Therefore, if you find Sets that are difficult to diagnose or to repair, contact R&D center.
- (3) Basic TROUBLE DIAGNOSIS procedure  
Check problem Symptoms -> Open BACK COVER -> Trouble Diagnosis e Replace broken PCB  
-> Adjust new PCB module -> HEATRAN (for at least 30 minutes, input TEST PATTERN FULL WHITE), full FUNCTION test -> Repair Complete.
- (4) Required equipments for trouble diagnosis
  - DIGITAL MULTIMETER (User Mode : measure DC VOLTAGE, measure DIODE VOLTAGE, SHORT-OPEN TEST )
  - Screwdriver (or electric screwdriver), plastic adjusting tool
  - Oscilloscope (for detailed examination only)
- (5) Each BLOCK operations explained in this manual include OSCILLOSCOPE waveforms, but these are for reference only and utilizing them to repair PCBs is not necessary.
- (6) Before replacing PCBs, you MUST turn the AC Switch “OFF”.
- (7) After replacing High Voltage Board, POWER, and MAIN & SUB PCB, extra adjustment might be needed. (Refer to I. 6. Adjusting Method)
- (8) After the set is repaired, leave BACK COVER open for followings. Run HEATRAN for at least 30 minutes by displaying TEST PATTERN (FULL WHITE) of SERVICE MODE (Refer to Service Manual I.5. Service Mode). Check the screen conditions and basic functions (remote control operation etc.).
- (9) After BACK COVER is closed, redo HEATRAN for at least one hour with FULL WHITE input using TEST PATTERN of SERVICE MODE. Check the screen conditions and basic functions.

### 9-2. Typical Symptoms of PCB problem or bad Connection

- (1) Symptoms of POWER PCB Trouble
  - <Symptom.1> Not even a weak discharge detected on the screen.
  - <Symptom.2> Discharge on the screen is unstable
  - <Symptom.3> Set is making unusual noise
  - <Symptom.4> POWER SHUT DOWN occur (refer to Service Manual I. 9-3)



## TROUBLE DIAGNOSIS

### (2) Symptoms of MAIN or SUB PCB Trouble

- <Symptom.1> Only a weak discharge shows on the screen, but it is displaying No images.
- <Symptom.2> Images are abnormal
- <Symptom.3> Particular input signal (Video, PC or Component etc.) does not work.
- <Symptom.4> No SOUND
- <Symptom.5> Occasionally, set does not operate normally. Turning off and on the AC power make the set to operate normal again.
- <Symptom.6> Remote Control or KEY does not work.
- <Symptom.7> POWER SHUT DOWN occur (refer to Service Manual I. 9-3 )

### (3) Representative Symptoms caused by bad Connection between PCBs.

[Note] Dust or extraneous materials may cause bad connections. Most of the time, applying soft brush, AIR FRESHER, or breath to clean dust or extraneous materials can solve it. And then reassemble the Connector.

## 9-3. Trouble Diagnosis and Repairing Method for Representative Symptoms

### (1) When POWER SHUT DOWN occurs

#### <1> Definition of “SHUT DOWN”

- While LED color is green, POWER PCB does not make any operating noise. (Red: STAND BY, Green: Operating)
- When the set is turned on power relay does not operate normally, and POWER PCB does not make any operating noise.

#### <2> Trouble Repairing Procedure

- As shown in Fig. 5, first check whether “LOW VOLTAGE” part or “HIGH VOLTAGE” part has problems.
- If “LOW VOLTAGE” part’s problem is detected, diagnose and repair the SET as shown in Fig. 6.
- If “HIGH VOLTAGE” part’s problem is detected, diagnose and repair the SET as shown in Fig. 6.
- <Caution1> When disconnecting/connecting connectors, you MUST turn “OFF” the AC power and check the direction and position of the connectors before working.
- <Caution2> Whenever you reassemble connectors connecting High Voltage Board and POWER PCB(CN805, CN806), remaining voltage still exists in the POWER PCB could cause electric shock and damage the set. Therefore always reassemble the connectors several minutes after AC power is off. To be more careful, using a MULTIMETER you should check to see if  $V_{sus}$  is less than 10V and then connect connectors.

## TROUBLE DIAGNOSIS

(2) When weak Discharge exists on screen but “OSD screen” can not be seen

<1> Definition of this symptom

- When the set is turned on, screen is BLACK but Weak Discharge (luminescence) exists.
- OSD does not show on screen and the set does not respond to remote controller or KEY panel buttons.

<2> PCB CHECK PRIORITY

- MAIN PCB, SUS PCB

<3> Repairing Procedure

- Check LVDS cable (MAIN PCB to DIGITAL PCB) first and then other connectors connecting MAIN PCB. If this does not fix the problem replace MAIN PCB.

## TROUBLE DIAGNOSIS

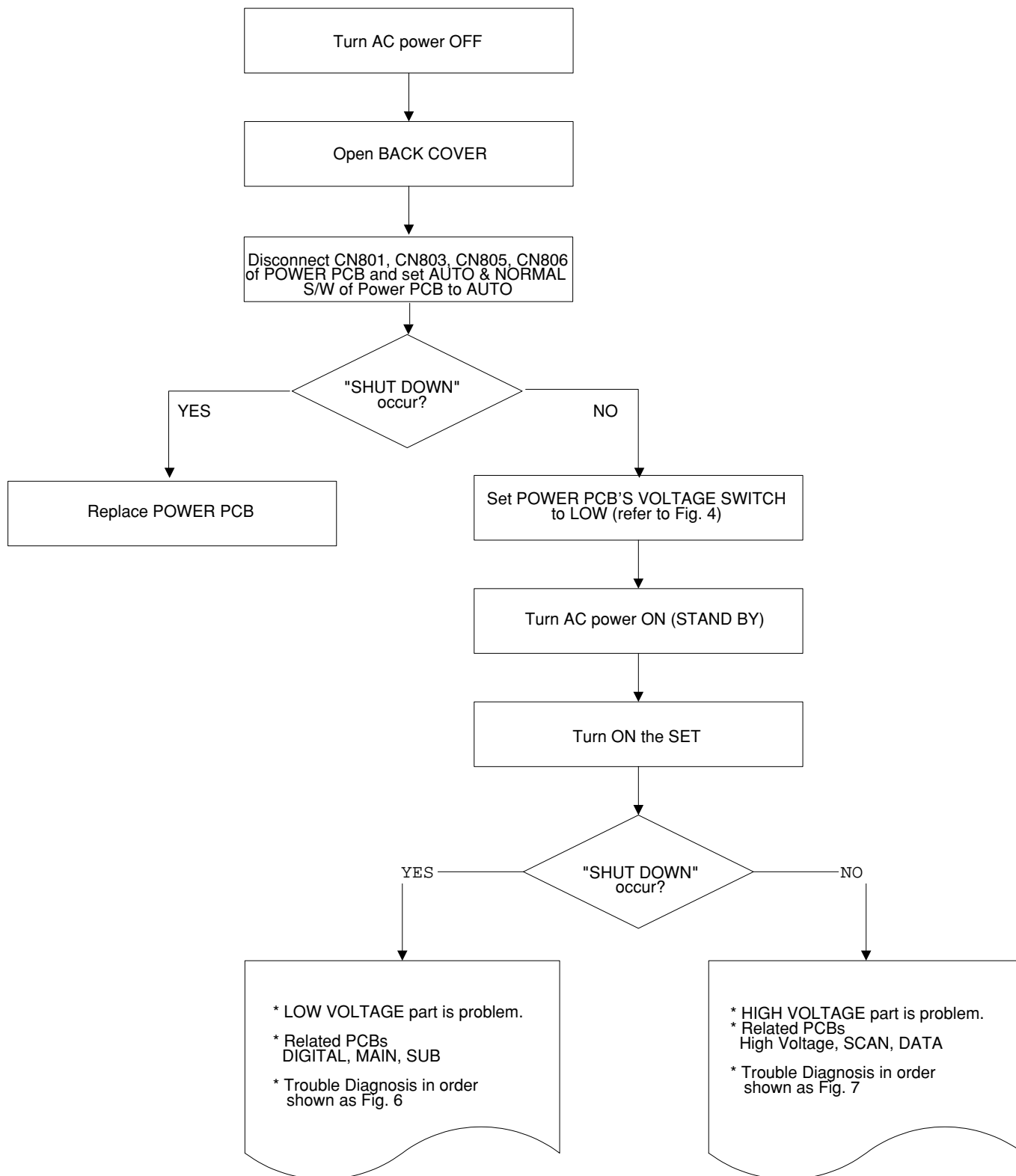


Fig. 5 Trouble Diagnosis Flow when “SHUT DOWN” occurs

## TROUBLE DIAGNOSIS

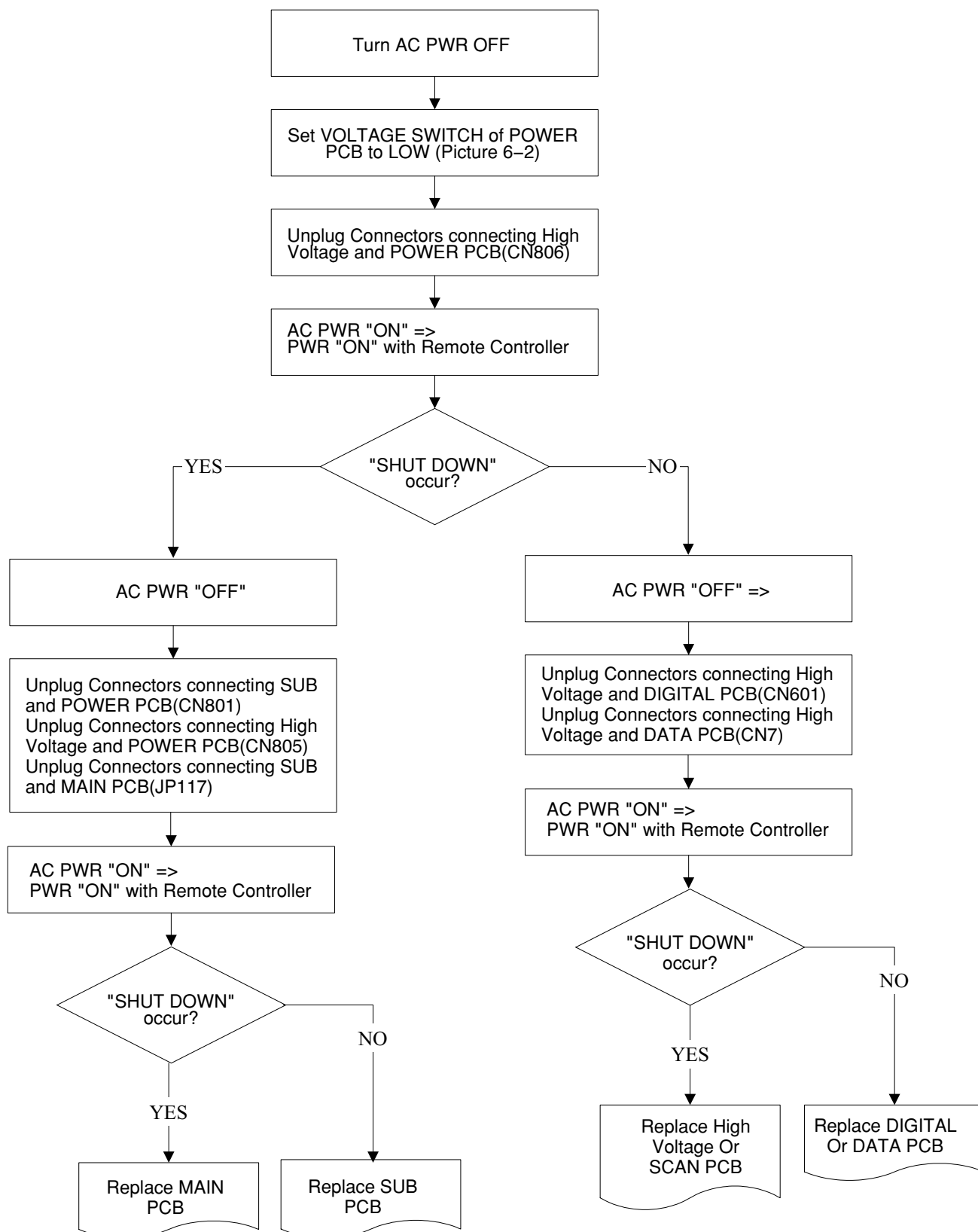


Fig. 6 Trouble Diagnosis Flow when LOW VOLTAGE "SHUT DOWN" occurs

## TROUBLE DIAGNOSIS

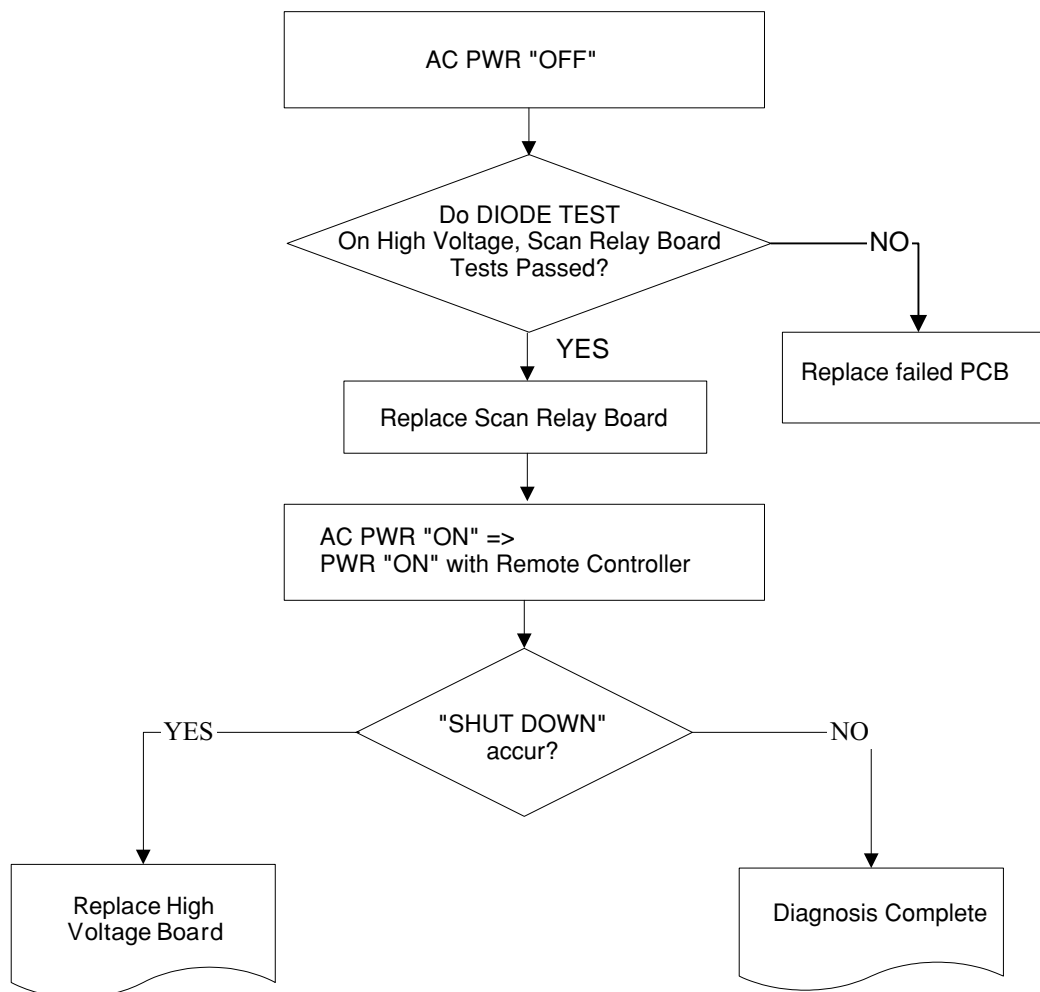
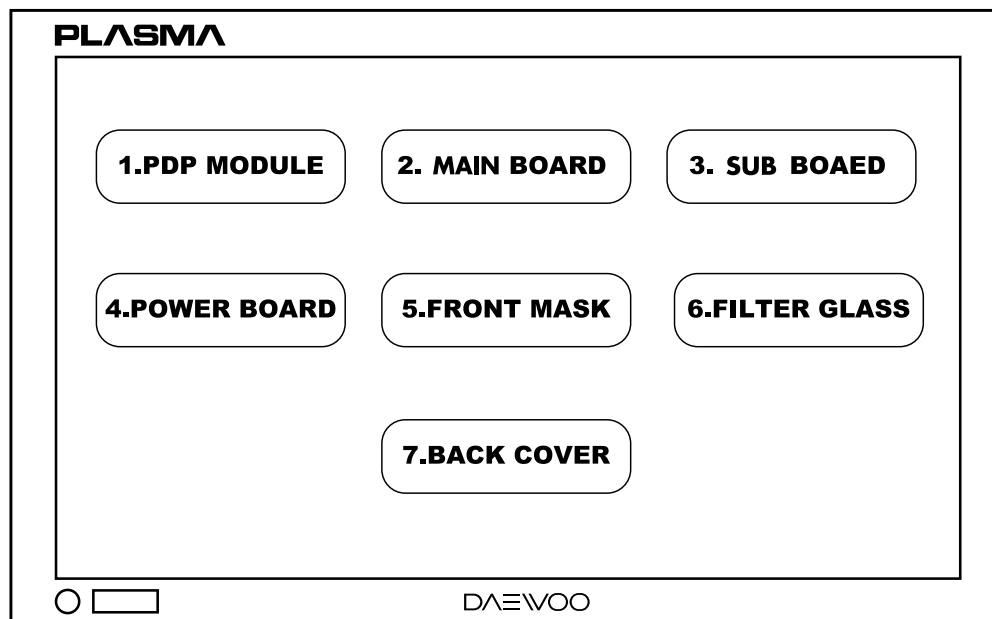


Fig. 7 Trouble Diagnosis Flow when HIGH VOLTAGE "SHUT DOWN" occurs

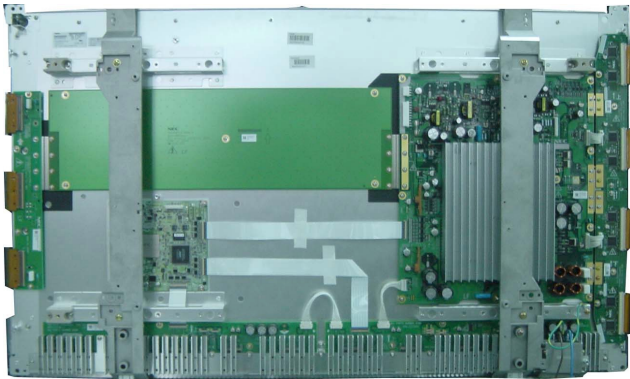
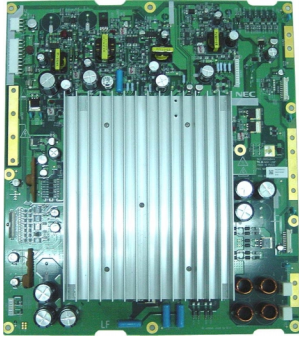


## 10. ASSEMBLY LIST

| No. | PCB ASS'Y NAME     | ASS'Y CODE | ASS'Y DESCRIPTION                |
|-----|--------------------|------------|----------------------------------|
| 1   | PCB MAIN MANUAL AS | PTMPMSG047 | DPP-4272NHS                      |
| 2   | PCB SUB MANUAL AS  | PTSBMSG047 | DPP-4272NHS                      |
| 3   | CABINET AS         | PTCACAG047 | DPP-4272NHS                      |
| 4   | COVER BACK AS      | PTBCSHG047 | DPP-4272NHS                      |
| 5   | MODULE PDP         | 4850M07610 | NP42B3MF01                       |
| 6   | MODULE POWER       | 4850M07910 | 1H217W                           |
| 7   | HIGH Voltage PKG   | 485AS06490 | PKG42B3G1-01D                    |
| 8   | Common Bypass PKG  | 485AS06590 | PKG42B3J4/42D2J4/35B2J4-01A      |
| 9   | Common Relay PKG   | 485AS06690 | PKG42B3J3-01A                    |
| 10  | Data Relay PKG(L)  | 485AS06790 | PKG42B3J1-02B                    |
| 11  | Data Relay PKG(R)  | 485AS06890 | PKG42B3J2-02B                    |
| 12  | Scan Relay PKG-T   | 485AS06990 | PKG42B3E1-01B                    |
| 13  | Scan Relay PKG-B   | 485AS07090 | PKG42B3E2-01B                    |
| 14  | Digital PKG        | 485AS07290 | PKG42B3C1-01D-06                 |
| 15  | GLASS FILTER       | 485A101180 | 42L4-MESH                        |
| 16  | CONNECTOR          | 4850705N31 | 12505HS-05+12505TS+ULW=650       |
| 17  | CONNECTOR          | 4850706N23 | 12505HS-06+12505TS+ULW=500       |
| 18  | CONNECTOR          | 4850710N16 | YMH025-10R+YMT025R+ULW=250       |
| 19  | CONNECTOR          | 4850732N01 | YDH200-32 50MM                   |
| 20  | CONNECTOR          | 4850724N01 | YDH200-24 50MM                   |
| 21  | CONNECTOR          | 4950704020 | YH396-04V+YT396+ULW=600          |
| 22  | CONNECTOR          | 4850710N15 | YH396-10V+YT396+ULW=600          |
| 23  | CONNECTOR          | 4850706S25 | YMH025-06R+YMH025-06R+ULW=300    |
| 24  | CONNECTOR          | 4850702S27 | YFH800-02+4272NH+ULW=450/400/600 |
| 25  | PLATE INLET FILTER | 4855217100 | A5052 T1.0                       |
| 26  | SPEC PLATE         | 4955400100 | P.E FILM 91.5X63                 |
| 27  | SCREW SPECIAL      | 4856017100 | WAS M5X14                        |
| 28  | BRKT POWER MODULE  | 4853220100 | SECC T1.0                        |
| 29  | BRACKET POWER SW   | 4953201000 | SECC T0.8                        |
| 30  | MASK FRONT         | 4952002351 | FR ABS GY                        |
| 31  | FILTER EMI         | 5P06GEEW3E | 06GEEW3ES                        |
| 32  | SW PUSH            | 5S40101005 | KDC-A04-10(B)-A1-G               |

## 11. STRUCTURE OF PDP SET







## STRUCTURE OF PDP SET

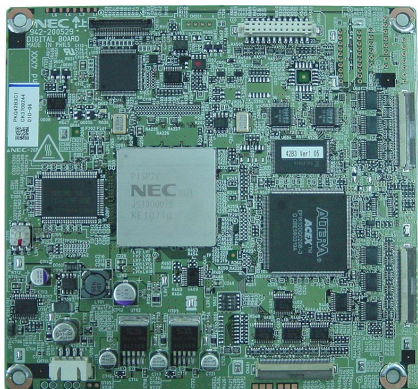
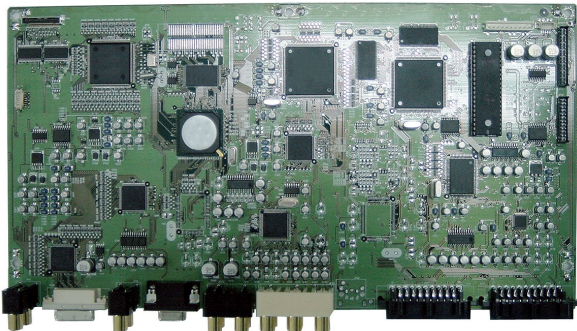
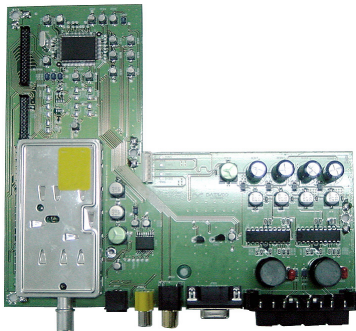
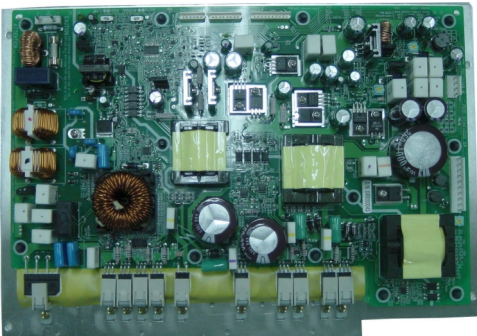
| COMPONENTS                        | PICTURE  | REMARK |
|-----------------------------------|--|--------|
| 1) PDP MODULE<br>(with F/SUPPORT) |    |        |
| 1a) HIGH<br>VOLTAGE<br>PKG        |   |        |
| 1b) Common<br>Bypass<br>PKG       |  |        |
| 1c) Common<br>Relay<br>PKG(R)     |   |        |



STRUCTURE OF PDP SET

| COMPONENTS                  | PICTURE   | REMARK |
|-----------------------------|---|--------|
| 1d) Data<br>Relay<br>PKG(L) |   |        |
| 1e) Data<br>Relay<br>PKG(R) |   |        |
| 1f) Scan<br>Relay<br>PKG-T  |  |        |
| 1g) Scan<br>Relay<br>PKG-B  |  |        |

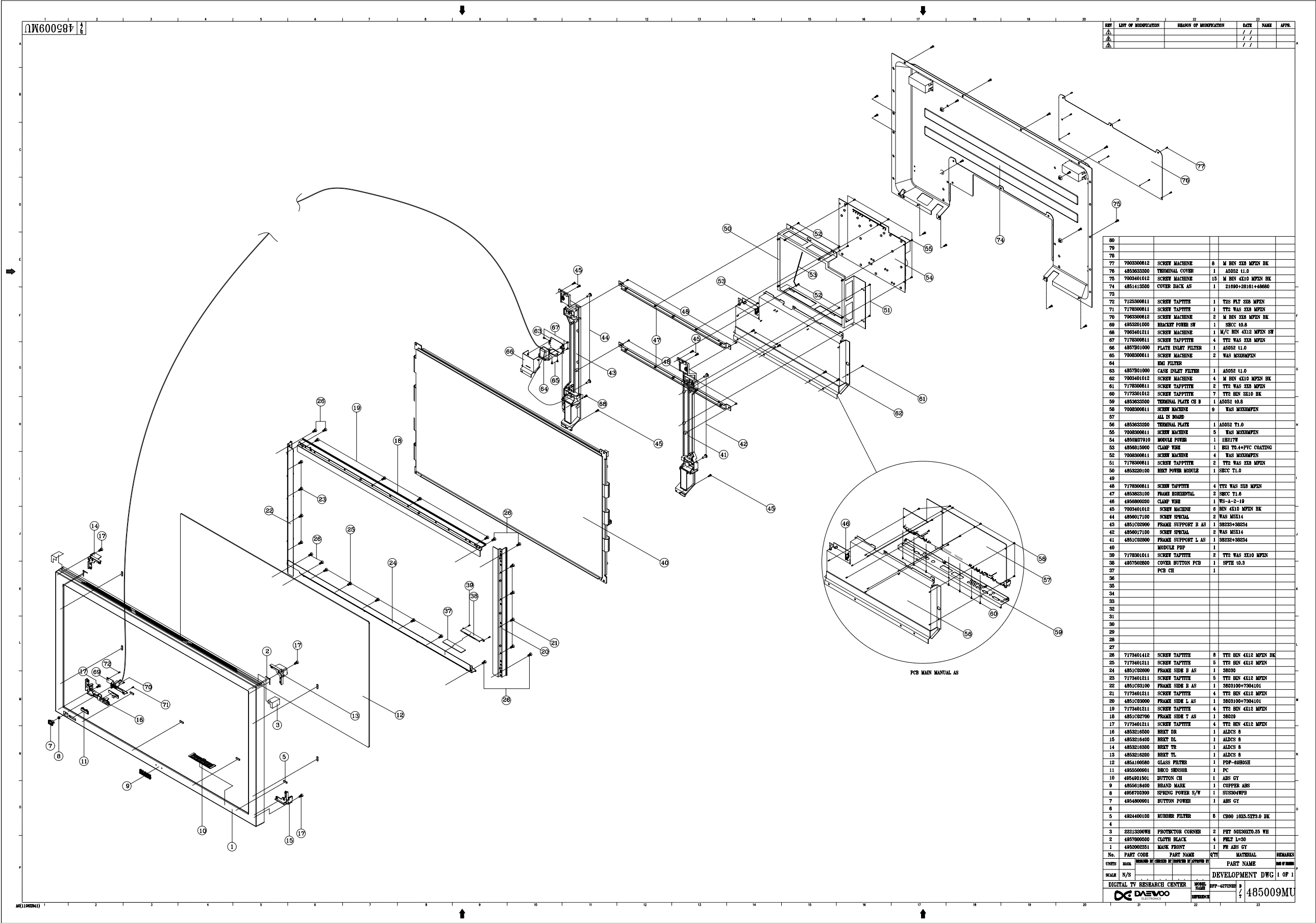
## STRUCTURE OF PDP SET

| COMPONENTS         | PICTURE  | REMARK |
|--------------------|--|--------|
| 1h) Digital<br>PKG |    |        |
| 2) MAIN BOARD      |   |        |
| 3) SUB BOARD       |  |        |
| 4) POWER BOARD     |  |        |

## STRUCTURE OF PDP SET

| COMPONENTS      | PICTURE  | REMARK |
|-----------------|--|--------|
| 5) FRONT MASK   |    |        |
| 6) FILTER GLASS |   |        |
| 7) BACK COVER   |  |        |

12. EXPLODED VIEW



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